TOMALES BAY NATIVE OYSTER RESTORATION WORKING GROUP

July 26, 2019

The Tomales Bay Native Oyster Restoration Working Group is pleased to present the Greater Farallones National Marine Sanctuary Advisory Council (SAC) with the below recommendations to restore the Tomales Bay native oyster, *Ostrea lurida*. This recommendation package includes the Working Group's recommendations, Appendix I: Site Selection Criteria and Pilot Restoration Sites, and Appendix II: Pilot Restoration Site Maps.

This package conveys the recommendations of the Working Group to the SAC for their review, consideration, and discussion at the August 15th SAC meeting.

The Working Group encourages the SAC to read, flag substantive issues, and prepare comments or draft suggested wording changes ahead of the meeting.

Please Note: ***Public Review and comment is encouraged****.* Please share this document and comment period details (below) with those you represent or those who may have interest in this topic.

Written and oral comments are being accepted from the SAC and the public.

1. ***Written comments*** can be sent to alayne.chappell@noaa.gov ***by midnight of August 9th***. All written comments received by this deadline will be sent to the SAC on Monday August 12th for review and consideration. Written comments will not be accepted or distributed after the deadline.
2. ***Oral comments*** can be made ***in person at the Joint Monterey Bay and Greater Farallones NMS Advisory Council meeting on August 15th at the Half Moon Bay Yacht Club, 214 Princeton Ave***. Please refer to the meeting agenda for times.

Questions should be directed to Alayne Chappell, SAC Coordinator at alayne.chappell@noaa.gov.

Recommendations

***Chair**: Dr. Bibit Traut*
***Project Manager**: Julia Royster*

Date: 06/10/2019

Overview & Purpose

On August 29, 2018, the Greater Farallones National Marine Sanctuary Advisory Council requested the establishment of a Tomales Bay Native Oyster Restoration Working Group. A Working Group was assembled in December 2018 and held two meetings, March 15 and May 15, to evaluate key information for the native oyster *Ostrea lurida* to inform the development of recommendations to restore this species. The purpose of the Working Group was to: 1) select pilot sites for oyster restoration in Tomales Bay, 2) create recommendations for increasing the Tomales Bay native *Ostrea lurida* population, and 3) explore co-benefits of native oyster restoration such as living shorelines for coastal protection for Tomales Bay communities. As a result of the meetings, the Working Group solidified a restoration objective focused on native oyster population enhancement and resilience, and has provided detailed recommendations to support the implementation of pilot projects to meet this objective. The Working Group acknowledges broader restoration conversations are needed that are outside of the scope of the 2019 Tomales Bay Native Oyster Restoration Working Group. To support the continued conversation, the Working Group recommends the Sanctuary Advisory Council adopt the recommendations and send the Working Group meeting notes to the GFNMS Superintendent for further consideration.

Restoration Objective

Restoration of a sustainable, resilient Tomales Bay native oyster (*Ostrea lurida*) population will provide biotic and abiotic benefits. This nearshore and intertidal foundation species will enhance ecosystem function by providing food and refugia for birds, fish, and invertebrates. The oyster population will enhance ecosystem services that may contribute to coastal protection via oyster reefs that can attenuate wave energy and reduce the rate of coastal erosion.

Recommendation: Tomales Bay Restoration “Policy and Planning”

PP1: Compile and analyze existing data focused on the ecology or habitat of the native Tomales Bay oyster, *Ostrea lurida*, to better understand if, why, where, and by how much the Tomales Bay *Ostrea lurida* population needs to be enhanced to ensure it

functions successfully into the future.
Recommended Champion: UC Davis, Bodega Marine Lab (Ted Grosholz)

PP2: Create a map of Tomales Bay that highlights the limiting factors for *Ostrea lurida* population growth to help guide the selection of pilot and demonstration restoration sites and techniques (e.g. spat vs. built substrate). Data collected as part of the Working Group will be shared with the champions.
Recommended Champions: UC Davis, Bodega Marine Lab (Ted Grosholz & John Largier), National Park Service, Greater Farallones National Marine Sanctuary

PP3: Conduct a Tomales Bay habitat assessment to better understand current conditions, to inform regional prioritization, to develop restoration collaborations, and to clarify the extent of restoration required, as well as the funding needed for implementation. Refer to Working Group notes for details on what should be considered in a habitat assessment.
Recommended Champions: UC Davis, Bodega Marine Lab (Ted Grosholz & John Largier), National Park Service, Hog Island Oyster Company, Greater Farallones National Marine Sanctuary

PP4: Conduct a Programmatic Cultural Resource Assessment
Recommended Champions: National Park Service (Paul Engel), State Historical Preservation Office, Tribal Native American Heritage Commission (NAHC), local Tribal groups, Environmental Justice Outreach, community groups/recreation communities.

PP5: Use the Site Selection Criteria for *Ostrea lurida* in Tomales Bay (see Appendix I) developed by the Working Group to prioritize pilot sites and to identify additional potential restoration sites. Together, they will form a network of restoration sites within Tomales Bay to be developed as part of a Strategic Restoration Plan for *Ostrea lurida* in Tomales Bay. Furthermore, the Working Group encourages the assessment and potential use of artificial hard substrate (e.g. oyster shell structures, non-creosote piling, moorings piers, seawalls, bulkheads) that can act as oyster habitat. Lessons learned from Seattle's fish friendly seawall should be considered when designing or modifying future artificial structures so as to optimize the provision of oyster habitat in Tomales Bay. This would support the broader West Coast goals for the restoration of *Ostrea lurida*. Sites should be assigned to a restoration phase (e.g. pilot, demonstration, or large-scale), and the purpose of restoring each site and its success criteria should be clarified before implementation.
Recommended Champions: Greater Farallones Sanctuary, National Park Service, California State Parks, Tomales Bay State Park

PP6: Develop a 10 year Strategic Restoration Plan for *Ostrea lurida* in Tomales Bay. It would outline restoration purposes, purpose-specific success criteria, restoration actions, research, and monitoring variables to ensure future restoration actions are appropriate and successful, and as needed adaptively managed to ensure future success of a resilient Tomales Bay ecosystem.

Recommended Champions: Greater Farallones Sanctuary, National Park Service, California State Parks, Tomales Bay State Park

PP7: Develop an interagency approval process to streamline permitting for future multi-jurisdictional and collaborative restoration projects, especially with regard to identifying regulatory requirements of each agency that may be shared, similar or conflicting, as well as coordinating review responsibilities under NEPA and CEQA. Engage management entities within Tomales Bay watershed to ensure objectives and activities are aligned and inform each other.

Recommended Champions: Greater Farallones National Marine Sanctuary, County of Marin

Jurisdictional Authorities to include in this discussion: California Coastal Commission, California Department of Fish and Wildlife, National Park Service (Point Reyes National Seashore, Golden Gate National Recreation Area), California State Parks, California Department of Public Health, California State Lands Commission, State Water Quality Resources Control Board, County of Marin, US Coast Guard, US Army Corps of Engineers, US Fish and Wildlife Service, National Oceanic and Atmospheric Administration National Marine Fisheries Service

PP8: Establish a committee to serve as long-term advisors on Tomales Bay native oyster, *Ostrea lurida*, restoration.

Recommended Champions: Greater Farallones Association, West Marin Interagency Committee, County of Marin

Recommendation: Native oyster, *Ostrea lurida*, "Population Enhancement"

PE1: Undertake phased restoration activities to augment the self-sustaining population of the Tomales Bay native oyster, *Ostrea lurida*, robust enough to be resilient to projected climate-related threats and episodic recruitment and mortality. Oyster restoration activities with potential to negatively impact sensitive habitats, like eelgrass, should be avoided.

Recommended Champions: Greater Farallones Sanctuary, National Park Service

Phase 1: Implement and monitor pilot restoration projects in 2020 at six locations (see Appendix II: Pilot Restoration Site Maps for *Ostrea lurida* in Tomales Bay) to

better understand if these locations are appropriate for demonstration projects. Pilot projects should include experimenting with a range of restoration and monitoring methods to help managers better understand what are the most effective methods to use in Tomales Bay. Examples of methods to test are in the Working Group meeting materials. Evaluate pilot restoration projects against project-specific success criteria prior to Phase 2.

Phase 2: Implement demonstration projects in 2023 in areas where pilot restoration projects were deemed successful based on the identified success criteria and incorporating lessons learned from the pilot restoration projects. Considerations to include when developing a demonstration project are in the Working Group meeting materials. Evaluate demonstration projects against predetermined success criteria prior to Phase 3.

Phase 3 Strategically implement a large-scale restoration project in 2027 and monitor for evaluation in 2030. The goal of evaluation will be to meet the *Ostrea lurida* population target that ensures the *Ostrea lurida* population is sustainable over time.

Recommendation: Address Existing and Future "Threats" to *Ostrea lurida* Populations

T1: Develop a plan to manage the invasive oyster drill to mitigate its negative impacts on the sustainable population of *Ostrea lurida*, as well as the overall ecosystem function of Tomales Bay. The plan should include management of the bat ray exclosure fence posts that currently serve as habitat for the drills, as well as focused reduction of drills near pilot restoration project sites.
Recommended Champion: Greater Farallones National Marine Sanctuary

Recommendation: "Monitoring, Evaluation, and Adaptive Management" of *Ostrea lurida Restoration*

ME1: Develop restoration success criteria and metrics to be included in a Tomales Bay *Ostrea lurida* monitoring plan using NOAA Restoration Center Tier I and Tier II protocols as a guide. Success should be defined and assessed across individual projects, multiple scales (e.g. individual oysters, species that benefit from oysters, and bay-wide), benefits (e.g. *Ostrea lurida* population, community, ecosystem, biotic/abiotic), and stressors. When tailoring the success criteria to individual projects, consideration should be given to project location, materials used, project-specific goals, and intended benefits

to ensure monitoring protocols are developed to effectively assess the project's role in changes to benefits provided.

Recommended Champions: Greater Farallones National Marine Sanctuary, Greater Farallones Association, National Park Service, UC Davis, Bodega Marine Lab, Native Olympia Oyster Restoration Network

ME2: Monitor sediment dynamics in Tomales Bay to quantitatively assess sedimentation changes (e.g. shoreline accretion and erosion) that may be created by pilot *Ostrea lurida* restoration projects.

Recommended Champions: Native Olympia Oyster Restoration Network, San Francisco Regional Water Quality Control Board

Key Players to Consult: Marin Resource Conservation District, Marin Agricultural Land Trust

ME3: All restoration activities should include a maintenance or management plan, including a timeline, and responsible party to optimize the positive impact to the *Ostrea lurida* population over time and minimize the potential for negative impacts at abandoned sites where structures were installed or materials added.

Recommendation: "Research and Data" Needs to inform *Ostrea lurida* Restoration

RD1: Develop a consistent funding stream to support comprehensive, consistent collection of data that will inform the development of a population dynamics model of native oyster adults and larvae (e.g. *Ostrea lurida* numbers, larval movement patterns, settlement and recruitment details, and hydrodynamics of Tomales Bay).

Recommended Champions for Funding Stream: Greater Farallones National Marine Sanctuary, National Park Service, California State Parks

Recommended Champions for Model Development: UC Davis, Bodega Marine Lab (Ted Grosholz, Andy Chang, & John Largier)

RD2: Collect data on recreational use of Tomales Bay, recognizing that currently there is not much known about the recreational use of Tomales Bay and multiple agencies would benefit from having a better understanding of its spatial/temporal use. This will fill important data gaps and ensure the population and Tomales Bay users are more fully understood before launching larger scale restoration.

Recommended Champion: National Park Service,Greater Farallones National Marine Sanctuary, California State Parks (Tomales Bay State Park), and Marin County Parks and Recreation

RD3: Prioritize the need for research to assess the interaction of eelgrass and *Ostrea lurida*, to be used to inform all phases of future restoration projects.

Recommended Champions: UC Davis, Bodega Marine Lab (Ted Grosholz & John Largier)

RD4: Study to quantify the role of *Ostrea lurida* in providing protein to the surrounding community/fishery and the number and type of species that native oysters help support in Tomales Bay. For example, determining what species rely on the oysters? Would their numbers improve if the *Ostrea lurida* population was enhanced?

Recommended Champion: UC Davis Bodega Marine Lab

RD5: Study to understand the existing state of *Ostrea lurida* aquaculture co-benefits in Tomales Bay, as well as incorporating lessons learned into future management actions. Puget Sound Restoration Fund should be used as an example for the type of studies to conduct.

Recommended Champion: UC Davis Bodega Marine Lab

RD6: Study the type of substrate most effective for *Ostrea lurida* to prosper in different areas of the bay, as well as the most efficient way to introduce and/or enhance the substrate at the project site. From this information, create criteria to guide the implementation of future restoration projects. Criteria should consider bathymetry, site specific objective, and the natural and/or man-made existing substrate.

Recommended Champions: UC Davis Bodega Marine Lab, California Coastal Conservancy

RD7: Study to quantify the role of *Ostrea lurida* in providing living shoreline benefits such as reducing coastal erosion, increasing sediment accretion, and protecting other coastal habitats and human assets. The study should include monitoring sediment levels, erosion rates and sedimentation accretion rates at restoration sites and control sites without oyster reefs. How would a robust and resilient native *Ostrea lurida* population affect and protect the bay?

Recommended Champion: County of Marin

Recommendation: "Education and Outreach" for *Ostrea lurida* in Tomales Bay

EO1: The Working Group recommends that a Tomales Bay restoration education and outreach strategy and program be developed. Program messages should include:

1. The benefits a functional Tomales Bay ecosystem can provide to the surrounding human community, e.g. habitat for nearshore species, food source for predators, including fishermen, mediate salt marsh accretion, mitigate wave and wind energy, and contribute to nearshore coastal shoreline protection.
2. The state of the *Ostrea lurida* population.
3. Threats to the *Ostrea lurida* population and Tomales Bay habitats.
4. What community members can do to help the *Ostrea lurida* population. Such as: (a) establish recruitment collection sites using oyster shell necklaces. (b) Outline the specific actions the community can do to reduce threats to *Ostrea lurida.*

Recommended Champions: National Park, Greater Farallones Association, California State Parks, Native Olympia Oyster Restoration Network

EO2. Outreach could include:

1. Engaging school groups in community science activities and developing educational materials for K-12 teachers.
2. Development of pamphlets for interested public, e.g. kayakers, property owners, aquaculture, etc.
3. Targeting boaters for assistance in monitoring restoration sites.
4. Creation of educational wayside signage for sites in all phases of restoration.
5. Engage diverse communities in recognizing the current and past cultural and economic value of *Ostrea lurida* in Tomales Bay and along the West Coast.

Recommended Champions: National Park, Greater Farallones Association, California State Parks, Native Olympia Oyster Restoration Network

EO3: The Working Group recommends the development of a Tomales Bay Community Science Program with the goal of increasing local community understanding of Tomales Bay ecosystem dynamics, local buy-in of the ecological and economic value of *Ostrea lurida* and increased potential for data collection that will better inform adaptive restoration of *Ostrea lurida* populations and habitat. Community Science could include assisting with:

1. Monitoring, for example
    a. Water Quality (salinity, sediment, temperature)
    b. *Ostrea lurida* population and related threats
    c. Man-made structures for oysters and oyster drills
2. Removal of non-native oyster drills aligned with California Department of Fish and Wildlife collection permit requirements
3. Fabrication of alternate oyster habitat, e.g. shell mounds, reefballs, habitat suspended from floats or piers, subtidal habitat attached to mooring anchors.

4. Installing appropriate hard substrate that acts as artificial oyster habitat and encourages oysters to recruit.

Recommended Champions: National Park, Greater Farallones Association, California State Parks, Native Olympia Oyster Restoration Network, Point Reyes National Seashore Association, The Watershed Project

EO4: Build and engage multi-organizational collaborations to share information about Tomales Bay *Ostrea lurida* oysters and to facilitate effective management of the oyster population's Tomales Bay ecosystem and surrounding human communities.

Recommended Champions: Greater Farallones Association, Tomales Bay Watershed Council, West Marin Interagency Committee

APPENDIX I: Site Selection Criteria and Pilot Restoration Sites

Site Type	*Habitat*				*Co-benefits*	
Site Name	Cypress Point	Duck Cove	Pelican Point (South)	North Shell Beach	Marshall Mile	North of Tomasini Pt (CA DFW I.D. M-430-12)
Estimated Latitude	38.16490000 N	38.14630817 N	38.18045180 N	38.12079625 N	38.15872889 N	38.12508363 N
Estimated Longitude	122.90130000 W	122.90248996 W	122.92941720 W	122.87752857 W	122.89549352 W	122.86343539 W
Tomales Bay location (Mid-Bay)	Upper mid-bay; Eastside	Mid mid-Bay; Westside	Upper mid-bay; Westside	Lower mid-bay; Westside	Mid mid-bay; Eastside	Lower mid-bay; Eastside
Size of area to restore	Scalable in area without restrictions of other uses (e.g. moorings, aquaculture)					Scalable in area without restrictions of other uses (especially up-tidal)
Site benefit: maximize habitat success or co-benefit of protection value	Managed retreat of salt marsh	Managed retreat of salt marsh	Habitat	Habitat	Coastal Protection Value - County of Marin Large potential benefits: 1) Large built area and 2) Lots of large private parcels	Coastal Protection Value - County of Marin 1) attenuate waves, 2) aquaculture benefits (use of long line baskets), and 3) filter non-point pollution from watershed.
Impact to recreational use or scenic uses	No recreational use	No recreational use, Locate south of Sacramento Landing to minimize conflict with law enforcement	Moderate to Low recreational use	Moderate to Low recreational use	Summer Recreational visitor use (picnic, fishing, and beer drinking)	Moderate to Low (Hog Island educational group camping)
Susceptibility to harvest	Low	Low	Low	Low	High for tidelands, but low for subtidal areas.	Unknown
Current substrate type	Rocky	Rocky	Cobble, Sandy	Cobble, Sandy	Cobble, Sandy, plus some pilings, seawalls, foundations, and rip-rap	Cobble, Sandy
Threat from non-native Drills	Not extreme, no drill or minimal	Not extreme, no drill or minimal	Low	Low	Unknown	Moderate
Accessibility • Public • Research	Accessibility: boat or through the Audubon Canyon Ranch property or inland GGNRA property. Public: by boat only and not often. Research: Unknown	Accessibility: Boat only Research and Public access: Rare	Accessibility: Boat only Research and Public access: Minimal	Accessibility: Boat only Research and Public access: Minimal	Accessibility: Shoreline (all groups from tidelands), Private property (get input from Eastern Shore Planning Group and 2 private landowners), and access from the highway South of Marshall Tavern on state-owned land and Audubon Canyon Ranch (all groups). The two private properties further south are undeveloped and not protected from any access with potential prescriptive rights.	Accessibility: Boat and trail Research and public: Moderate for educational purposes, aquaculture use, recreational camping
Research Vallue	Good habitat (Rocky Point)				Good habitat (cobble, sandy) and possible artificial substrate	Good habitat (cobble, sandy)
Structure addition (type, performance, removable)	Viable to add structure			Viable to add structure (tides dictate barge access times)	Viable to add structure	
Larval Reservoir (aquaculture nearby)	Larval Reservoir (aquaculture to the north)	No	No	No	No aquaculture. Native oysters are found on natural rocky outcroppings, pilings, seawalls, and rip-rap.	Yes (aquaculture)
Impact to sensitive habitat	Minimal Eelgrass conflict	Conflict with Eelgrass minimized compared to Sacramento Landing	Low conflict with eelgrass beds	Low conflict with eelgrass beds	Moderate conflict with eelgrass beds	Low conflict with eelgrass beds as potentially inshore of existing beds.
Maximize nearby habitat protection	Yes (maximize marsh integrity)	Yes (maximize marsh integrity)	Yes (maximize marsh integrity)	Yes (maximize marsh integrity)	No	Yes (maximize marsh integrity)
Community Engagement	Native American Heritage Commission (NAHC), local Tribal groups, Environmental Justice Outreach, community groups/recreation communities				Same as habitat sites plus East Shore Planning Group	Same as habitat sites
Landowner	CA State Lands (H2O side), Audubon Canyon Ranch	CA State Lands, Point Reyes National Seashore	CA State Lands, Point Reyes National Seashore	CA State Lands (H2O side), CA State Parks (Land side)	CA State Lands, Private Parcels abutting (#s 10602012, 10602017 & 10602018); shoreline slightly north is owned by Audubon Canyon Ranch.	CA State Lands (inwater area of Tomales Bay), CA State Parks (upland of Tomales Bay State Park and abutting waters)
Lead Jurisdictional Authority	**CA State Lands**, GFNMS, CA Coastal Commission, Possibly Audubon Canyon Ranch depending on how close to shore.	NPS, **CA State Lands**, CA Coastal Commission	NPS, **CA State Lands**, CA Coastal Commission	NPS, **CA State Lands**, State Parks, GFNMS, CA Coastal Commission	**CA State Lands**, CA Coastal Commission, and GFNMS	CA Coastal Commission, GFNMS, CA State Parks, and CDFW if located on M-430-12 OR CA State Lands if located outside of M-430-12.
Consultations and Permitting Considerations	All sites are subject to Coastal Commission permitting or consistency determinations. All sites may be subject to USACE permitting unless USACE ceeds authority to another federal agency. USCG would need to permit if navigation issues are presented, however, the recommended locations are currenly outside of navigation channels. Duck Cove and Pelican Point sites are over NPS-owned tidal and subtidal areas, but not within the GFNMS; all other sites are subject to GFNMS permitting and not NPS permitting. Marin County permitting may also be applicable. California FGC or State Lands Commission manages experimental oyster growing in Tomales Bay and may specifically have to permit a project at Tomasini Point if located in CDFW Lease I.S. M-430-12. A consulatation could be required with National Marine Fisheries Service for groundfish Essential Fish Habitat if there are potential impacts to eelgrass.					

APPENDIX II: Pilot Restoration Site Maps

Tomales Bay Native Oyster Restoration Working Group
Final Site Selection Maps

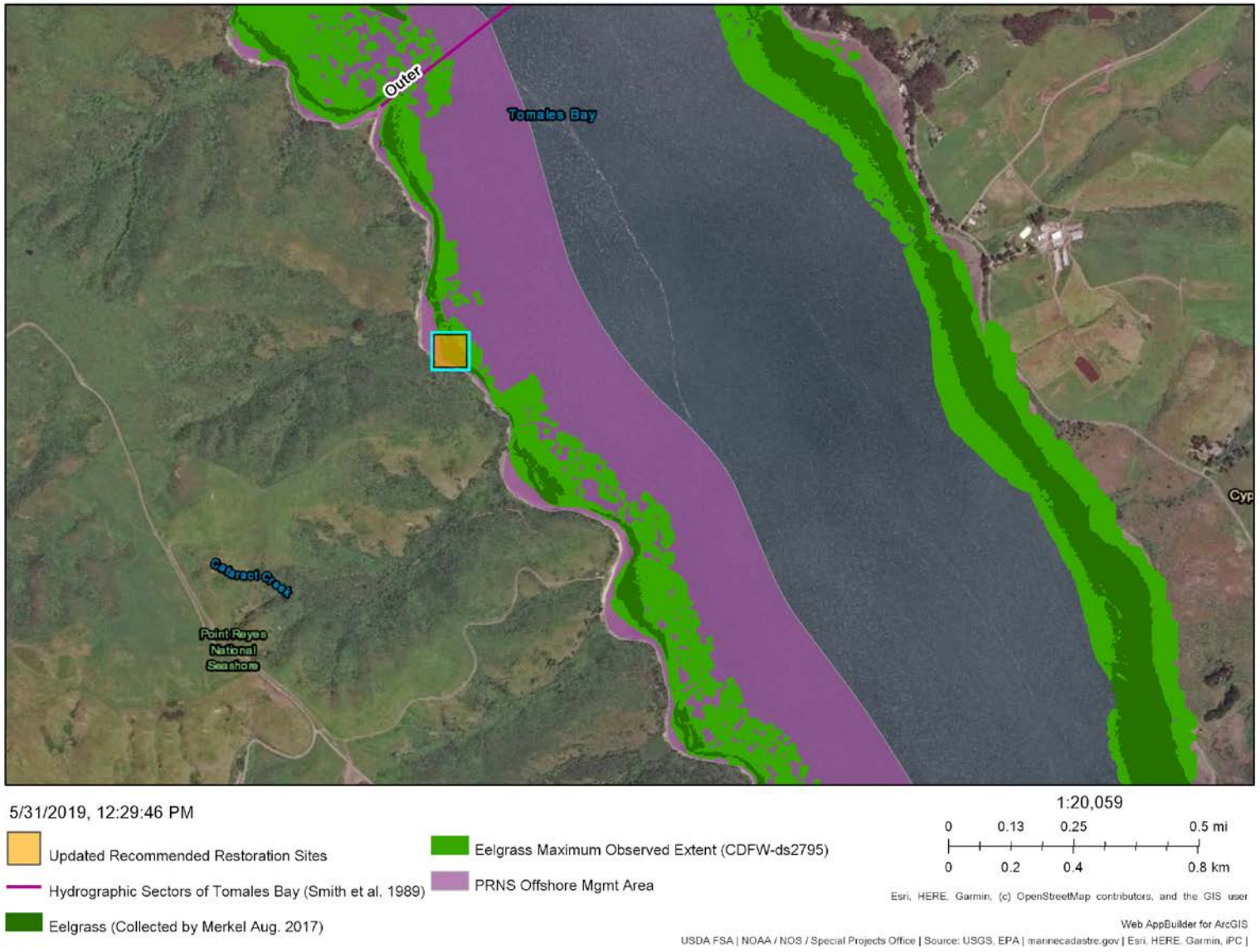
The following maps show the locations that the Tomales Bay Native Oyster Restoration Working Group selected as potential restoration sites on May 15, 2019. These maps were produced as a product of a discussion/decision support tool utilizing GIS layers.

A few things to note about these maps:

1. The Discussion/Decision support tool has many layers that are not shown on these maps. Additional data including bathometry, sea level rise predictions, coastal access, waterways, etc. is part of a GIS tool that can be available during the August Sanctuary Advisory Council meeting.
2. Data relevant to the scale of each map is shown, therefore if a layer is not on all maps, it is because it is not relevant for all locations.
3. The legend is self-generated from the system and doesn't show all the layers depicted in the map. Text explaining additional layers follows each map.
4. The eelgrass data is depicted with two green colors:
    a. Light Green- This layer represents the presence and maximum observed extent of eelgrass (Zostera sp.) habitat. It is based on California Department of Fish and Wildlife (CDFW) and NOAA survey data. The historic eelgrass distribution of Tomales Bay is based on a composite of survey information derived from aerial overflights conducted in 1992, 2000, 2001, and 2002 by the CDFW. In 2013, the CDFW refined the eelgrass mapping within Tomales Bay by completion of georectification and digitization of eelgrass from photographs taken on June 29, 2010. Groundtruthing of the photographic interpretation was completed from May 13 to July 25, 2013. The NOAA survey data was collected in 2017 by the methods listed below.
    b. Dark Green – The August 1-9, 2017 eelgrass survey data produced by Merkle and Associates and published by NOAA, Greater Farallones National Marine Sancuarty. It was conducted using a hybrid approach that leveraged the capabilities of vessel-mounted interferometric sidescan sonar (ISS) and, where possible to fly, low-altitude color aerial imagery captured from unmanned aerial vehicles (UAVs) to detect eelgrass throughout its suitable depth range. ISS surveys were conducted primarily during high tides within the deeper subtidal and extreme lower intertidal portions of the bay's channels and flats to capture both eelgrass and bathymetry data. At extreme low tides, low-altitude UAV, color aerial imagery was collected to assess intertidal and shallow subtidal (i.e. less than 3-5ft below mean lower low water) eelgrass distributed over intertidal flats. The data provides a complete synoptic inventory of eelgrass within Tomales Bay during the peak of the eelgrass growing season.

Tomales Bay Native Oyster Restoration Working Group
Final Site Selection Maps

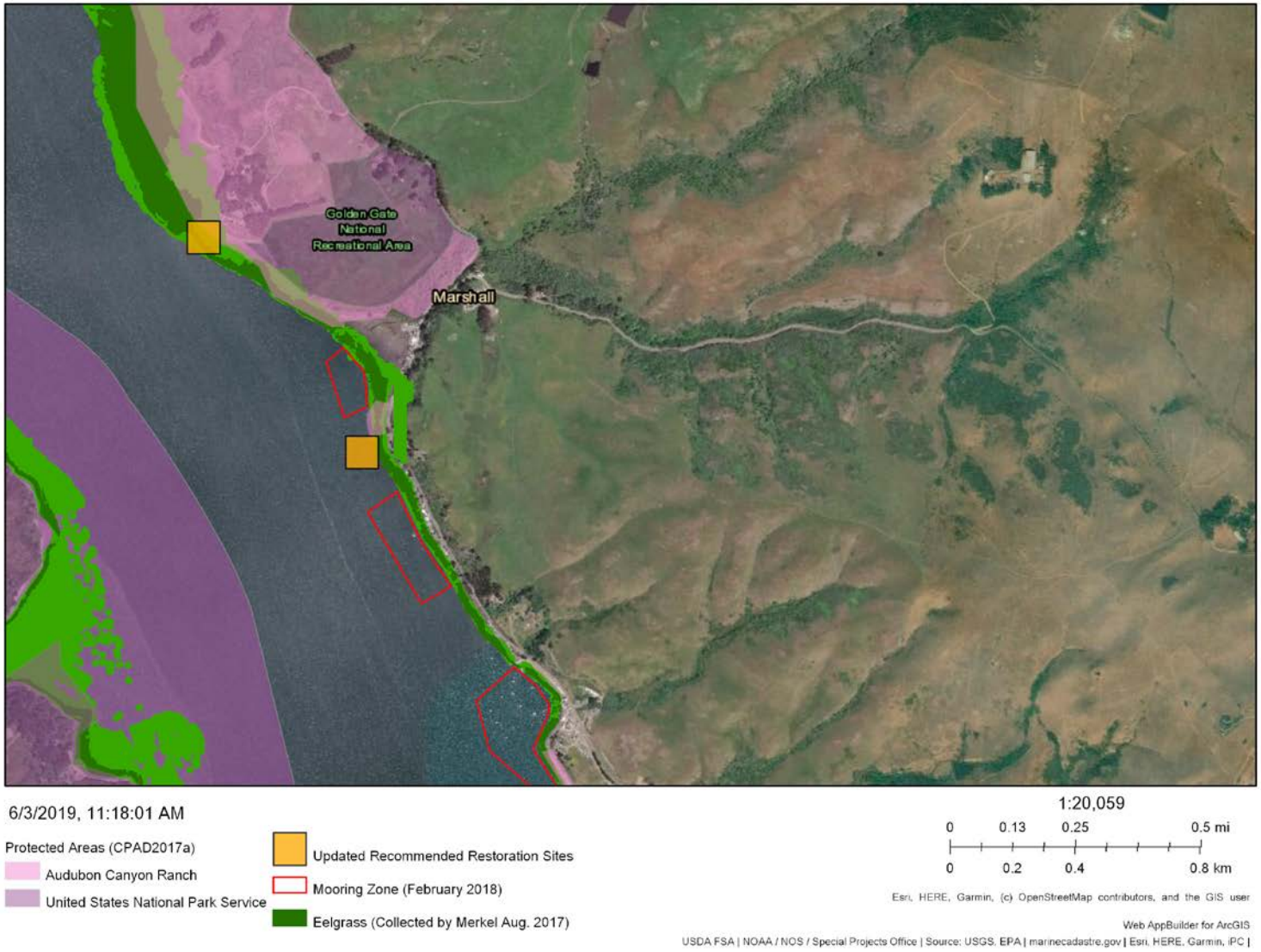
South Pelican Point



This is a product of the Tomales Bay Native Oyster Restoration Working Group of the Greater Farallones National Marine Sanctuary Advisory Council.

Tomales Bay Native Oyster Restoration Working Group
Final Site Selection Maps

Cypress Point and Marshall Mile



Colors missing from the legend: Light Green-maximum extent of eelgrass.

This is a product of the Tomales Bay Native Oyster Restoration Working Group of the Greater Farallones National Marine Sanctuary Advisory Council.

Tomales Bay Native Oyster Restoration Working Group
Final Site Selection Maps

Duck Cove

6/3/2019, 11:08:13 AM

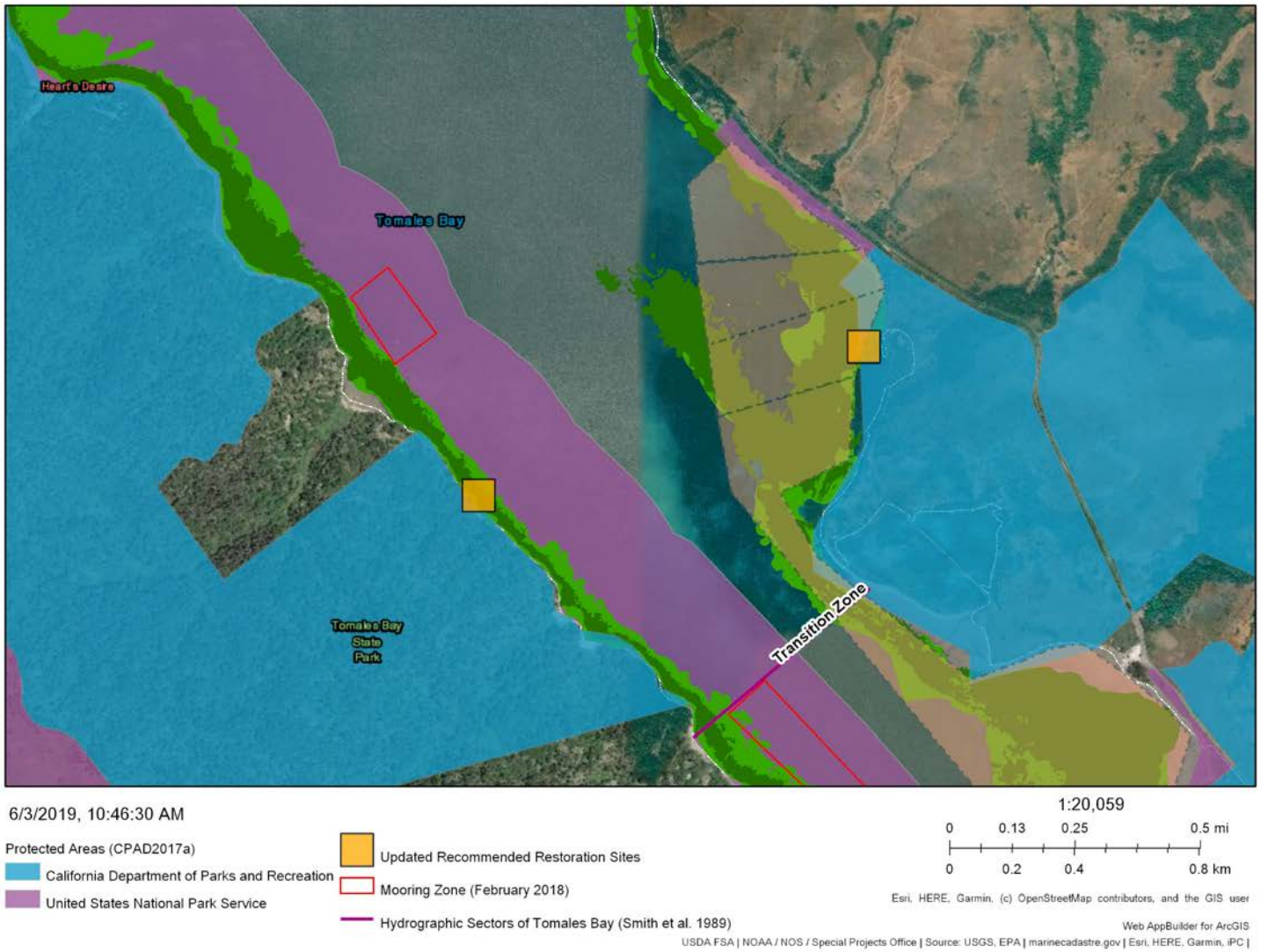
Updated Recommended Restoration Sites
Mooring Zone (February 2018)
Aquaculture in U.S. Coastal and Offshore Marine Waters
Eelgrass (Collected by Merkel Aug. 2017)
Eelgrass Maximum Observed Extent (CDFW-ds2795)
PRNS Offshore Mgmt Area

1:20,059
0 0.13 0.25 0.5 mi
0 0.2 0.4 0.8 km

This is a product of the Tomales Bay Native Oyster Restoration Working Group of the Greater Farallones National Marine Sanctuary Advisory Council.

Tomales Bay Native Oyster Restoration Working Group
Final Site Selection Maps

N. Shell Beach and N. of Tomasini Point (430-12)



Colors missing from the legend: **Dark Green** – Eelgrass 2017; **Light Green**-maximum extent of eelgrass; **Peach** –Aquaculture Leases

This is a product of the Tomales Bay Native Oyster Restoration Working Group of the Greater Farallones National Marine Sanctuary Advisory Council.