

Committee Staff Summary for March 12, 2026 MRC

3. Marine Aquaculture on State Water Bottom Leases

Today's Item	Information <input checked="" type="checkbox"/>	Action <input type="checkbox"/>
(A) Status of Existing Leases and Pending Requests		
Receive and discuss update on the status of existing leases, pending leaseholder requests, and pending lease applications.		
(B) Best Management Practices (BMPs)		
Receive and discuss Department update on BMPs and possibilities for progressing development of BMP plans for all state aquaculture leases.		

Summary of Previous/Future Actions

(A) Status of Existing Leases and Pending Requests		
• MRC received overview of leases and future lease planning		Mar 6, 2018; MRC
• Annual status updates		Mar 2019 – 2025; MRC, various meetings
• Today, receive annual update		March 12, 2026; MRC
(B) BMPs		
• Aquaculture leases and debris public meeting		August 2015; public meeting
• Discussed BMPs in shellfish aquaculture		2016 – 2017; Commission and MRC, various
• MRC prioritized BMP statewide information-gathering and public engagement efforts to define requirements for BMP plans in regulation		March 2018; MRC
• MRC directed staff to draft proposed requirements for BMPs, provide opportunity for public review of draft language, and schedule for MRC review		July 2018; MRC
• MRC requested staff revise the draft proposed requirements and release for public review, for consideration in March 2019		November 2018; MRC
• MRC placed BMPs on hold		March 2019; MRC
• MRC requested the Department prepare a timeline for re-engaging in BMP developments		March 13, 2025; MRC
• Received Department update on potential for developing BMP requirements		July 16-17, 2025; MRC
• Today, receive Department update on potential BMP plan resumption		March 12, 2026; MRC

Committee Staff Summary for March 12, 2026 MRC

Background**(A) Status of Existing Leases and Pending Requests**

The Commission has the authority to lease state water bottoms for marine aquaculture under sections 15400 and 15405 of the California Fish and Game Code, while the Department maintains primary responsibility for management and administration. Commission and Department staff work closely to ensure lease compliance, coordinate on areas of mutual responsibility, and assist leaseholders with emerging issues.

In March 2018, in response to stakeholder interest and a request from MRC, the Department provided a comprehensive overview of existing leases—including location, acreage, lease terms, and ongoing management initiatives. The information informed subsequent discussion about how Department and interagency management efforts may support future aquaculture planning. Since 2018, the Department has provided MRC with annual updates on state marine aquaculture leasing.

Overview of Existing Leases and Pending Applications

Existing leases: Currently, there are 17 active Commission-issued state water bottom leases held by 10 growers across Tomales Bay, Morro Bay, and coastal Santa Barbara; 16 leases are for cultivating shellfish and 1 is for seaweed.

Applications: Three applications for new leases were previously submitted. Two have undergone initial vetting; one applicant (Santa Barbara Sea Ranch) withdrew its proposal after MRC vetting in 2025. The remaining two (San Andreas Shellfish in Tomales Bay, and Malibu Oyster Company in coastal Los Angeles County) are still at the early stages and have not yet entered environmental review under the California Environmental Quality Act (CEQA). Commission staff remain in communication with applicants, who are not ready to proceed to CEQA review. Two additional applications are anticipated soon and currently entering phase zero (0) of the Commission's [enhanced leasing process steps](#), approved in 2023, which includes [evaluating if a new lease is in the public interest](#).

In the Department's most recent update to MRC (March 2025), staff reported 15 pending lease action requests, with 12 for existing leases and 3 for new leases (see Exhibit A1).

Recent Updates

Since the 2025 MRC update, six pending lease requests have been closed: one amendment request was withdrawn, lease amendments were executed for 4 previously approved requests, and, as noted above, one of the new lease applications was withdrawn. Five new lease action requests were submitted by existing leaseholders during the past year. In total, there are currently 15 pending lease action requests in addition to the two pending applications for new leases.

Lease action requests include additions of new species, changes to cultivation methods, and other adaptive needs. Progress on the actions often requires substantial coordination with other agencies, additional communication with applicants, developing CEQA documents, and multiple levels of review.

Committee Staff Summary for March 12, 2026 MRC

Other lease management and oversight efforts have included Commission and Department staff contribution to a new [Guide to \[state and federal\] Leasing, Permitting, and Authorizing Commercial Aquaculture Operations off the California Coast](#), as members of the Southern California Offshore Aquaculture Interagency Working Group; collaborative development of a draft aquaculture action plan, as members of the State Aquaculture Leadership Team; co-development of an improved escrow agreement template for required financial surety (near completion); and direct engagement with growers to address lease compliance accountability, as needed.

Staffing and Workload Considerations

Staff capacity was reduced during a four-month vacancy at the end of 2025. The temporary environmental scientist position assisting with aquaculture leasing reached the end of its term, though a new limited-term position was subsequently made available for one year, with a potential one-year extension; the position was filled in December 2025 by former California Sea Grant State Fellow Caroline Newell, who assumed lead responsibility for aquaculture. Caroline has initiated more regular communication with growers and is working closely internally and with the Department to strengthen coordination and support shared progress and oversight.

On average, the environmental scientist dedicates about 40% of their time to aquaculture and kelp bed lease tasks, while also supporting other priorities such as the Experimental Fishing Permit Program, marine protected area petitions, materials to inform Commission decision-making and MRC recommendations, fishery management efforts, and Coastal Fishing Communities Policy implementation. The competing demands limit staff time available for aquaculture needs.

Within aquaculture leasing, staff's primary obligation is to fulfill core lease management responsibilities — processing lease action requests, reviewing compliance, preparing for lease renewals, and communicating with leaseholders — before advancing broader initiatives such as a State aquaculture action plan, programmatic environmental impact reports (EIRs), ground-truthing cultivation methods, or BMP plans.

Looking ahead, staff anticipates additional workload associated with lease renewals, as seven leases are set to expire in 2027. Staff has also identified concerns with the existing lease template, last updated 15 years ago, and may propose revisions to improve clarity, including provisions related to enforcement of lease terms.

Next Steps

At today's meeting, the Department will provide a more detailed presentation on the status of existing leases and pending lease action requests (see Exhibit A2). Because the Department was actively synthesizing recent statistics at the time this staff summary was prepared, staff included additional context in this section to support understanding of upcoming management needs for marine aquaculture leasing.

Committee Staff Summary for March 12, 2026 MRC

(B) Best Management Practices (BMPs)*Project History and Context*

Background (2015-2019). Development of shellfish and seaweed BMP plans for state water bottom leases was initiated in response to persistent community concerns — primarily in Tomales Bay — about legacy and new aquaculture-related debris, displaced gear, and plastic pollution. From 2015 through 2018, the Commission and Department engaged growers and regional stakeholders through meetings and MRC discussions to explore lease-specific BMP plan requirements, with interest in periodic review and tailoring to site-specific conditions. The last formal MRC discussion was in March 2019 (see Exhibit B1 for background).

Pause and Intervening Factors (2019–2024). Progress paused in the latter part of 2019 due to staffing constraints (medical leave, acting assignments, and the new service-based budgeting initiative). The first new lease applications in over 25 years were received between 2018 and 2021, and collided with the COVID-19 pandemic in 2020, further delaying the BMP effort while staff prioritized lease application processing.

Recent Context (2025). During the March 2025 annual update, public input urged resuming BMP plan development; the Department aquaculture coordinator committed to returning with a potential timeline. At the July 2025 MRC meeting, the Department reviewed the history of BMP efforts and current context, noting that while the formal BMP project remains paused, several elements have advanced since 2019:

- Many growers voluntarily adhere to BMP principles and, in Tomales Bay, growers have contributed to regular bay-wide clean-ups; some growers have voluntarily implemented or expanded BMPs to reduce gear loss, improve training, minimize debris, and invest in clean-up.
- Some growers are members of the Pacific Shellfish Growers Association (PCSGA), whose guidance outlines ethical standards and BMP concepts, providing options adaptable to individual operations.
- Agency coordination has addressed aspects of the original BMP objectives through permit conditions (e.g., updated California Coastal Commission coastal development permits and U.S. Army Corps of Engineers permits requiring BMPs and clean-up measures), and development of joint interagency [Guiding Principles for Sustainable Marine Aquaculture in California](#) through the State Aquaculture Leadership Team and adopted by California Ocean Protection Council in 2021, which set the foundation for developing an aquaculture action plan.
- Department and Commission staff pursued federal funding for removal of legacy debris, although the program funding was cut in 2025 before awards were granted.

Need for BMP Plans

State water bottom leases for aquaculture are governed by California Fish and Game Code Section 15400 et seq. and California Code of Regulations, Title 14, Section 237. While Section 15400 prescribes BMP standards for any future marine finfish aquaculture (currently prohibited in California), shellfish aquaculture leases do not have an explicit

Committee Staff Summary for March 12, 2026 MRC

statutory or regulatory suite of required BMP standards — leaving this as a discretionary Commission policy or regulatory choice.

Gaps Remain. Despite progress via coastal development permit conditions and voluntary industry practices, some issues — such as consistent on-lease gear management, debris minimization and clean-up protocols, and standardized training — are uneven and vary across leaseholders. These were part of the Commission’s original rationale for pursuing lease-specific BMP plans and continue to be areas of public and Commission interest.

Potential MRC Considerations

- *Policy choice.* MRC may consider whether to renew focus on flexible, lease-specific BMP plan requirements that are periodically reviewed to support environmental performance and operational consistency, or rely on current mechanisms (coastal development permit conditions, voluntary industry BMPs, and the forthcoming aquaculture action plan), recognizing limited staff capacity and ongoing program needs.

- *Pathways for Implementation.*

Revisiting the lease-by-lease approach. Ensuring that leaseholders conform to environmental standards and operational practices currently relies on the language and conditions contained in each individual lease agreement. While MRC previously directed staff to pursue a regulatory approach, BMP requirements could be introduced individually at renewal or amendment. This approach risks introducing inconsistencies in requirements across leaseholders and delay universal adoption until at least 2035 (based on latest lease renewal timeline).

Regulatory approach. Pursuing regulations requiring all leaseholders to prepare BMP plans aligned with statewide standards would provide a pathway for applying uniform requirements simultaneously across leases. However, compliance would still occur over time, as growers develop and refine draft plans and staff conduct iterative reviews and offer feedback. With limited staff capacity and 17 plans to evaluate, initial implementation would require a phased strategy. Plans could be required to be reviewed and approved by the Commission on a recurring cycle (e.g., every five years). Prior to rulemaking, Department and Commission staff would need to actively engage leaseholders and the public in developing the proposal, and assess staffing and process needs for both initial rollout and ongoing reviews; BMP plan approvals would be exempt from CEQA under a categorical exemption.

- *Alignment with Statewide Efforts.* The current draft aquaculture action plan includes an action item expressly devoted to cross-agency BMP coordination through the Statewide Aquaculture Leadership Team, offering a potential avenue for broader, coordinated implementation and alignment with statewide frameworks.
- *Workload Trade-Offs and Prioritization.* Any resumption of BMP plan requirements should account for competing priorities, including upcoming lease renewals,

Committee Staff Summary for March 12, 2026 MRC

progress on pending aquaculture lease action requests, new lease applications, and broader aquaculture oversight initiatives.

Update

At the November 2025 MRC meeting, staff were directed to revisit BMP planning in parallel with aquaculture action plan discussions to evaluate the next steps and priorities.

Today, the Department will present an overview of the BMP project's history, the range of possible approaches, and considerations for a potential rulemaking. Additionally, aquaculture growers have been invited to share their operational practices and ongoing clean-up efforts. The Department's presentation (Exhibit B1) will provide more detailed context needed for MRC discussion in refining BMP expectations, clarifying the pathway for future BMP plan requirements, and determining whether and how to resume development of those requirements.

Aquaculture Leasing Priorities and Needs

Staff and the Department have maintained a focus on established leasing priorities intended to collectively advance multiple goals for improving aquaculture operations and management, which are:

- Plan for lease renewal requests, evaluate when received, and execute approved renewals
- Advance pending and new requests for lease amendments
- Directly engage with growers to address lease compliance concerns and ensure accountability
- Participate in completing and implementing a State aquaculture action plan
- Complete a financial surety template and deploy across all leases
- Advance new lease applications through the enhanced leasing process

Additional needs staff and the Department have identified for potential future focus include:

- Update the aquaculture lease template related to compliance accountability measures (optimally, prior to any lease renewal decisions in 2027)
- Develop and complete a rulemaking to establish Commission authority for reimbursement of consultant fees and staff time related to CEQA implementation
- Ground-truth and standardize culturing gear and methods in marine aquaculture lease agreements
- Support development of regional programmatic environmental impact reports for marine shellfish and algae aquaculture
- Overhaul Title 14 regulations related to state water bottom leases for aquaculture purposes
- Develop and complete a rulemaking related to BMP plans

Committee Staff Summary for March 12, 2026 MRC

Today, is an opportunity for MRC to develop a recommendation to the Commission regarding existing and future priorities related to state water bottom leases for aquaculture purposes.

Significant Public Comments

- (A) A state water-bottom leaseholder communicates ongoing frustrations with his experiences related to Commission and Department lease oversight. He reports that his long-standing request to add two native species to his lease remained unresolved for five years before he withdrew it to prioritize a new proposal for the Santa Barbara Community Kelp Farm (Exhibit A3). He noted that the new request has remained in phase 0 for four months with no indication of multi-agency review beginning. Based on past delays, he is concerned that approval could extend into 2031–2034.

The leaseholder expressed interest in how an aquaculture action plan may improve processing timelines, transparency, and accountability. He also expressed appreciation for recent communication from Commission staff and noted the positive impact of new staff engagement. He emphasized his long-term commitment to California aquaculture and the importance of continued support (Exhibit A4).

- (B) A concerned member of the public reiterates that enforceable BMPs are urgently needed to prevent environmental harm on public trust tidelands, a concern he has raised since 2015. Drawing on more than a decade of documenting gear loss and debris in Tomales Bay, he notes his view that decades of unsecured or abandoned shellfish aquaculture equipment have altered natural processes and contributed to armoring of the bay floor. He urges the Commission to adopt effective BMP requirements and ensure consistent compliance across leaseholders (Exhibit B3).

Recommendation

Commission staff: Recognizing current commitments and emerging priorities, recommend the Commission: (1) support the current suite of aquaculture-related commitments, which include: preparing for upcoming lease renewals, completing pending lessee requests to amend existing leases, directly engaging with growers to address lease compliance concerns and ensure accountability, participating in the development and implementation the State aquaculture action plan, completing an improved financial surety template and deploying across leases, and advancing new lease applications through the enhanced leasing process; and (2) direct staff to initiate updating the aquaculture lease template related to compliance accountability. Consider identifying priorities for potential future focus as other commitments are completed.

Exhibits

- A1. [Staff summary for Agenda Item 3\(B\)](#), March 13, 2025 MRC meeting, related to the status of existing leases for marine aquaculture (*for background purposes only*)
- A2. Department presentation: Existing leases and pending requests (*to be posted separately*)
- A3. [Commission letter to Bernard Friedman, CEO, Santa Barbara Mariculture Company, confirming withdrawal of lease amendment request for new species](#), sent February 20, 2026

Committee Staff Summary for March 12, 2026 MRC

- A4. [Email from Bernard Friedman, CEO, Santa Barbara Mariculture Company](#), received February 26, 2026
- B1. Department presentation: Aquaculture BMP plans (*to be posted separately*)
- B2. [Staff summary for Agenda Item 9, March 2019 MRC meeting](#), related to aquaculture BMPs (*for background purposes only*)
- B3. [Email from Richard James, Coastodian](#), received February 27, 2026

Motion

The Marine Resources Committee recommends that the Commission support staff focusing on existing workload priorities for marine aquaculture on state water bottom lease management and direct staff to initiate a lease template update, as recommended by staff.

OR

The Marine Resources Committee recommends that the Commission support staff focusing on existing workload priorities for marine aquaculture on state water bottom lease management and direct staff to initiate a lease template update, as recommended by staff, except for the following: _____.

Committee Staff Summary for March 13, 2025

For background purposes only

3B. Marine Aquaculture: Status of Existing Leases

Today's Item

Information

Action

Receive Department and Commission staff update on existing state water bottom leases and pending requests under review.

Summary of Previous/Future Actions (N/A)

Background

The Commission is the lessor of 17 active state water bottom leases issued for the purpose of marine shellfish and seaweed aquaculture. Leased areas are located in Tomales Bay, Morro Bay, and off the Santa Barbara County coast. Close coordination and problem-solving is required between staff and the Department, the latter supporting administration of leases and associated natural resource management where leased areas are located. In recent years, the Department and/or staff have provided an annual update on leases and pending leaseholder requests currently under review.

Pending Lease Actions

Staff and the Department meet bi-weekly to review and advance pending lease action requests. Currently, there are 15 lease action requests: one to transfer lease assignment; four to expand, reconcile, and/or modify lease boundaries; six to authorize the culturing of additional species; one to add/reinstate previously-authorized culture methods; and three applications for new leases, one of which is on hold. The reviews require multiple successive steps and, while some delays have ensued for various reasons, staff continues to diligently pursue completing administrative actions that do not require Commission approval, and to provide recommendations for those that require Commission action. Compliance with the California Environmental Quality Act (CEQA) for each individual request, for which the lessee or applicant bears significant responsibility, continues to be one of the principle drivers of timeline and workload.

In addition to advancing the 15 requests, staff is actively engaged in administrative oversight and leaseholder communications, where appropriate, to ensure leaseholders are in compliance with individual leases. Collaborating Commission and Department staffs continue to forge improved internal communications, coordination, and processes.

Implementing the Enhanced Leasing Process

Following the Commission's approval in August 2023 of the enhanced lease application process, and the public interest criteria and determination framework, Commission and Department staffs have actively collaborated to translate these tools into actionable steps. Efforts have focused on strengthening interagency coordination through the new guidelines by fostering improved collaboration and communication among state and federal agencies of jurisdiction and with applicants.

Committee Staff Summary for March 13, 2025*For background purposes only****Two Lease Applications***

Throughout 2024 and early 2025, Commission and Department staffs progressed two state water bottom lease applications, from San Andreas Shellfish Company and Santa Barbara Sea Ranch, Inc. While both applications were received prior to development of the enhanced lease application process, they are being integrated into the process as appropriate and have included multiple staff-led steps, such as:

- Coordinating and facilitating interagency meetings with regional state and federal agency representatives;
- proactively meeting with applicants to develop and review next steps in the process;
- supporting the initial vetting of applications at Marine Resources Committee and Tribal Committee meetings (additional committee discussions will occur throughout the application process);
- reviewing public input; and
- initiating environmental review under CEQA and additional reviews necessary for a public interest evaluation.

Commission Grants Lease Assignment Request

In February 2025, the Commission approved Cove Mussel Co., LLC's request to assign the lease for State Water Bottom M-430-06, in Tomales Bay, to Starbird Mariculture Incorporated for the remaining two years of the lease. The approval included amended lease terms to address marine debris concerns related to aquaculture operations, review by agency partners, and review by Starbird Mariculture Incorporated. The lease amendment formalizing the assignment will be executed after the required financial surety agreement is in place (currently under development).

Today's Update

Today, the committee will receive a Department presentation covering state water bottom leases, pending lease actions, and implementing the enhanced leasing process (Exhibit 1). Looking ahead, staff and the Department will continue to advance pending lease actions and consider ways to improve efficiency in advancing pending and new requests, including through enhanced interagency coordination.

Significant Public Comments (N/A)**Recommendation (N/A)****Exhibits**

1. [Department presentation](#)

Committee Direction/Recommendation (N/A)

Commissioners

Eric Sklar, President
Saint Helena

Darius W. Anderson, Vice President
Kenwood

Jacque Hostler-Carmesin, Member
McKinleyville

Samantha Murray, Member
La Jolla

Erika Zavaleta, Member
Santa Cruz

STATE OF CALIFORNIA
Gavin Newsom, Governor

Fish and Game Commission



*Wildlife Heritage and Conservation
Since 1870*

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February 20, 2026

Bernard Friedman, MSc.
Chief Executive Officer
Santa Barbara Mariculture Company
[REDACTED]
Santa Barbara, CA [REDACTED]

Sent via email to [REDACTED]

Dear Mr. Friedman:

Thank you for your email dated February 5, 2026. We appreciate you clarifying the intent behind your recent withdrawal request as well as your request that we acknowledge its connection to a new project you are pursuing. Specifically, we understand that your decision to voluntarily withdraw the species addition and lease expansion requests for State Water Bottom Lease M-653-02 reflects your commitment to prioritizing the Santa Barbara Community Kelp Farm lease application you are collaboratively developing.

This letter is intended to acknowledge the importance to you of the potential kelp farm and the connection between your withdrawal and your interest in having the State focus on helping you develop and advance a new lease application for the kelp farm. Your proactive communication helps ensure an accurate understanding of your priorities, and we will reflect this clarification in the Commission's records. We value your engagement and commitment to advancing aquaculture in California.

Additionally, in your February email correspondence, you requested that aquaculture be placed on the agenda for the March 12 Marine Resources Committee meeting. You may be pleased to learn that several aquaculture topics are slated for the March agenda: development of the state aquaculture action plan, status of existing leases and leaseholder requests, and update on aquaculture lease best management practices plans.

If there is anything you would like to discuss before the upcoming Marine Resources Committee meeting, we will gladly make ourselves available

With regards,


Melissa Miller-Henson
Executive Director

Bernard Friedman
February 20, 2026
Page 2

Attachment 1: Email from Bernard Friedman, dated December 18, 2025

Attachment 2: Email from Bernard Friedman, dated February 5, 2026

cc: California Department of Fish and Wildlife

Randy Lovell, Aquaculture Coordinator

Craig Shuman, Regional Manager, Marine Region

Kirsten Ramey, Program Manager, Marine Region

Sara Briley, Environmental Scientist, Marine Region

Attachment 1

From: [REDACTED]
Sent: Thursday, December 18, 2025 8:48 PM
To: Newell, Caroline@FGC <[REDACTED]>
Cc: Ashcraft, Susan@FGC <[REDACTED]>; Lovell, Randy@Wildlife <[REDACTED]>
Subject: RE: Formal Cancellation Request

Hi Caroline,

It's very nice to meet you! Confirmation to cancel all previous requests approved. Please prioritize the Santa Barbara Community Kelp Farm. I really need the Santa Barbara Community kelp farm to move forward in the permitting process. This is a great project with a lot of community support and I think you're going to learn a tremendous amount working with me, and I look forward to sharing and working with you.

Regards, Bernard

Santa Barbara Mariculture Co.

Bernard Friedman

[REDACTED]
Santa Barbara, CA [REDACTED]
[REDACTED]

From: "Newell, Caroline@FGC" <[REDACTED]>
Sent: 12/18/25 2:29 PM
To: Bernard Friedman <[REDACTED]>
Cc: "Ashcraft, Susan@FGC" <[REDACTED]>, "Lovell, Randy@Wildlife" <[REDACTED]>
Subject: Formal Cancellation Request

Hi Bernard,

First, I'd like to introduce myself – I am Caroline Newell, the new environmental scientist with the Fish and Game Commission. I am taking up the responsibilities of our previous environmental scientist, Kimi Rogers, so I will be the new FGC lead on aquaculture topics. I look forward to working with you!

I have been made aware that you have expressed to Department and Commission staff that you are putting your lease amendment request on hold in order to focus on the Santa

Barbara Community Kelp farm application instead. If this is the case and you are no longer actively pursuing to expand your lease area or add species to your existing lease, please confirm in email that you are withdrawing your lease amendment request for 653-02 . You can re-submit the amendment request at any time when you decide you'd like to actively pursue any changes.

By formally withdrawing the request, you'll allow us to have more bandwidth to focus on other priorities, such as the application for the Santa Barbara Community Kelp farm. Please feel free to reach out if you have any questions.

Cheers,

Caroline Newell (she/her)

Environmental Scientist
California Fish and Game Commission
715 P St, 16th Floor, Sacramento, CA 95814



Attachment 2

From: [REDACTED] <[REDACTED]>

Sent: Thursday, February 5, 2026 11:02 AM

To: FGC <FGC@fgc.ca.gov>

Cc: Shuman, Craig@Wildlife <[REDACTED]>; Lovell, Randy@Wildlife <[REDACTED]>; Ramey, Kirsten@Wildlife <[REDACTED]>; Briley, Sara@Wildlife <[REDACTED]>; Michael Nelson <[REDACTED]>; Kevin Gaines <[REDACTED]>; Sergey Nuzhdin <[REDACTED]>

Subject: RE: State Water Bottom Lease M-635-02 - lease withdrawal confirmation

Hi Melissa and the FGC and the CADFW,

The letter I recieved last week about cancelling my request for adding two species and expanding the lease did not quite capture the intent and rational for cancelling these requests. The requests were voluntarily cancelled because I would like to place a very high priority on the Santa Barbarbara Community Kelp Farm request for a new lease. My group which is cc'd here in the email had formally made a request to your agencies for the creation of the Santa Barbara Community Kelp farm back in November 2025. Please rewrite the letter as this is a very important detail that was not included in the letter.

In March of 2024, I travelled to an MRC meeting in Sacramento at my personal expense and time to communicate to your organizations that my permits for adding two additional species to my lease were not progressed in a timely fashion and the process was essentially stuck with no solution. I was expecting the department to take my inquiries seriously and respond to my personal plea for help. I have made these requests since September 2021 and was never given a notice by your organizations that my requests were accepted and being worked on by your agencies. After two emails and a consultation with staff, my requests have been ignored for the past two years. This is a reoccurring theme because back in 2017 a similar situation occurred with another request that had also been ignored for years.

There is an extreme lack of communication exhibited by the two agencies. Any communication exhibited has not been effective and lacks detail describing the situation. For example, the request to add California mussels to the lease is asking the department and the commission to coordinate with other State agencies to reduce permit irregularities as I do have permission from the California Coastal commission to cultivate California mussels as of 2019. I am merely asking that the agencies work together. CA PUB Res Code 30612.5 (2020)

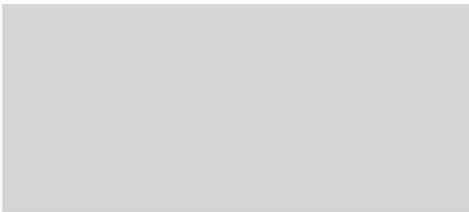
Once again, I will be travelling to the upcoming MRC meeting on March 12th to effectively communicate with your agencies. I was definitely ignored last year and that is why this year I'm doubling down on my efforts. Please put aquaculture on the agenda so that I can publicly speak to staff and commissioners. I hope that you will not wait until then to communicate with me as there is much to be communicated before then.

Sincerely,

Bernard Friedman

Santa Barbara Mariculture Co.

Bernard Friedman



From: [REDACTED]
Sent: Thursday, February 26, 2026 8:53 PM
To: FGC <FGC@fgc.ca.gov>
Cc: Ashcraft, Susan@FGC <[REDACTED]>; Newell, Caroline@FGC <[REDACTED]>; Kevin Gaines <[REDACTED]>; Sergey Nuzhdin <[REDACTED]>
Subject: MRC meeting march 12, 2026 comment letter

Hello FGC,

The following comments and the attached letter are for the MRC meeting March 12, 2026 Agenda Items 2 and 3. I will be attending in person and would very much like to continue my communications on all things aquaculture as all items posted on the agenda are very much related to one another. I explain this in the following.

Agenda item 2.

I participated in the Aquaculture Action Plan Industry Workshop on January 22, 2026 and thought the workshop went very well. OPC was very receptive to the industries concerns and captured those comments in a summary. It is my expressed hope that those comments will be incorporated in the revised AAP which I have not yet seen as of this writing.

Some of the key take aways I thought were very relevant to my 24 years of open ocean aquaculture experience in California are as follows:

- Establishing transparency, clear timetables, and accountability are key responsibilities for relevant permitting agencies.
- Agencies should advocate for aquaculture on it's scientific merits
- Education of the public on the merits of aquaculture is the burden of the State of California and not the applicant
- There should be one data portal monitored by independent scientist to distribute to applicants, agencies, and whoever wants to know
- Programmatic permitting of species and gear type to streamline permitting and create equity for all industry members and applicants
- Give license for the practice of aquaculture equitably with transparency

OPC seems to recognize that the State's aquaculture program has been in a long stagnation of disrepair which I am currently experiencing with my own continuous

permitting issues. I already have 6 permit amendments on my coastal development permit but can't get support for amending my lease with FGC. I applaud OPC for having the political will for tackling a long and well known problem for how to develop aquaculture sustainably in California.

Agenda item 3.

Please see the attached document which is a summary of the Santa Barbara Community Kelp Farm. Under the agenda item called status of existing lease holder requests I had previously had a request for adding 2 native species to my lease submitted for the past 5 years and recently cancelled that request (because it remained unfulfilled), to substitute a more pressing request. Santa Barbara Community Kelp Farm (SBCKF) has been submitted to the aquaculture coordinator for the past 4 months and is still in phase 0 with no details on whether a multi agency review has been held. At the rate that the current request is travelling, and based on previous experiences with previous requests, I am guessing the SBCKF request may not have agency approval until 2031 to 2034. This rate of travel in your permitting program cannot stand. Change must be implemented.

I am traveling to the MRC to understand what changes are going to be made. I am hoping some of the issues will be tackled with the AAP in agenda item 2. Otherwise I will go it alone. I would like to hear resolutions and accountability for change.

FGC, I want to personally thank you for the last few communications leading up to this meeting. The hiring of Caroline Newell is a change I see that is already making a difference. You should know by now that I deeply care about the relationship that I have with my family, my farm, and my community. I have been a deeply committed practitioner of aquaculture here in the Santa Barbara Channel. I cannot continue without FGC's most vital support.

Regards,

Bernard Friedman

Santa Barbara Mariculture Co.

Bernard Friedman

[REDACTED]
Santa Barbara, CA [REDACTED]
[REDACTED]

Santa Barbara Community Kelp Farm (SBCKF)

Project Overview

The Santa Barbara Community Kelp Farm (SBCKF) is a proposed 20-acre kelp aquaculture project located in State waters approximately one mile offshore of East Beach in Santa Barbara, California and 1.5 miles from the harbor entrance giving relatively easy access for visiting the farm.

The project is designed as a commercial demonstration-scale aquaculture operation consistent with California's marine resource management framework and intended to operate under all applicable CDFW, Coastal Commission, State Lands, and federal permitting requirements.

Social license is crucial for gaining the support of the legislative and regulatory governance system. SBCKF aims to build bridges into the aquaculture arena by focusing on research and teaching tools for the future development of larger kelp projects. Research, classes, tours, and workshops will be part of the showcase of the future of aquaculture. The farm also aims to develop kelp products for food and to showcase those products with local vendors. Lastly, the farm aims to promote ecosystem services kelp naturally provides for the environment such as regeneration of nearby kelp forests, buffering ocean acidification and harmful algal blooms, and increasing diversity in the environment.

SBCKF will be structured as a Limited Liability Company (LLC) with two members holding approximately equal ownership shares.

Santa Barbara Mariculture Company (SBMC)

Santa Barbara Mariculture Company (SBMC), owned and operated by Bernard Friedman, will serve as the primary offshore operator.

- 24 years of continuous shellfish aquaculture operations
- 72-acre farm located approximately $\frac{3}{4}$ mile offshore of Hendry's Beach
- Master's degree in Fisheries Management
- 30 years of mariculture experience in the Santa Barbara Channel
- Established working relationships with state and federal regulatory agencies

SBMC's long operational history in the Santa Barbara Channel provides demonstrated experience in:

- Offshore gear management
 - Environmental compliance
 - Reporting and monitoring
 - Navigational safety
 - Multi-agency coordination
-

Kelp Ark (501(c)(3) Nonprofit)

Kelp Ark is a California-based nonprofit organization focused on kelp conservation, genetics, and responsible aquaculture advancement.

Mission:

To safeguard the future of oceans through living biobanks by collecting, conserving, and sharing the genetic diversity of marine algae to support biodiversity, restoration, and sustainable mariculture.

Kelp Ark contributes:

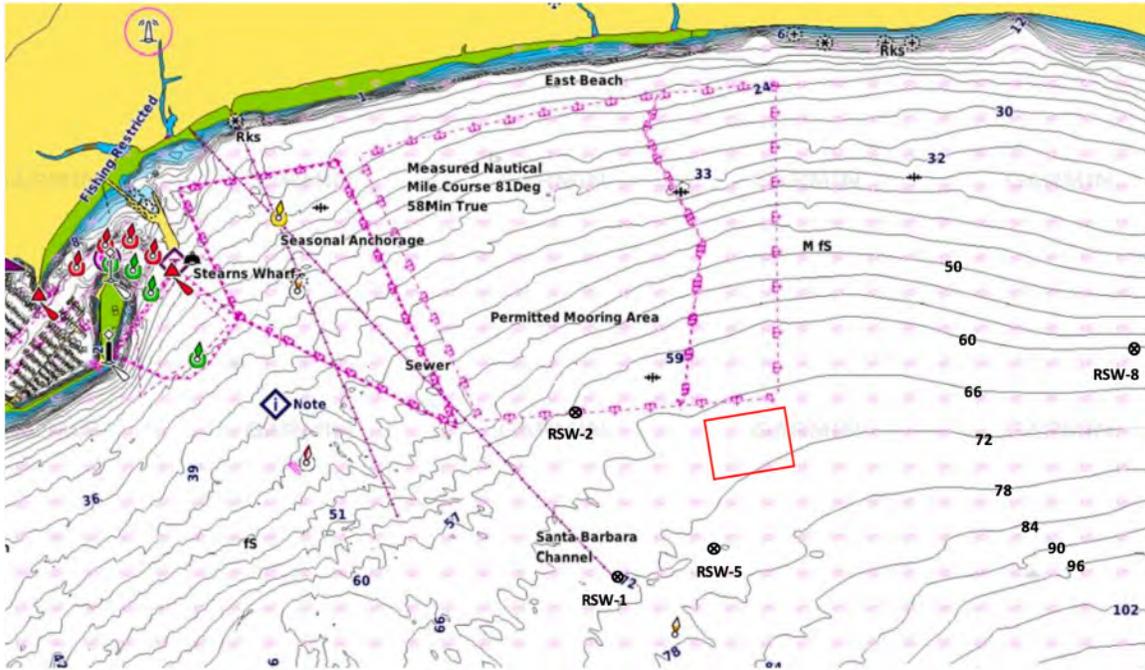
- Germplasm preservation expertise
- Genetic diversity management
- Controlled propagation of kelp gametophytes and sporophytes
- Science-based restoration support
- Traceable seedstock production

The organization was founded by Dr. Sergey Nuzhdin, Professor of Genetics at USC, with over 200 peer-reviewed publications and 30 years of experience in evolutionary genetics and population biology.

Kelp Ark's scientific leadership ensures that kelp cultivation efforts are informed by:

- Genetic diversity safeguards
- Population structure analysis
- Adaptive resilience considerations
- Long-term biodiversity protection

Farm Location Map



SBCKF is the red rectangle just south of the permitted mooring area.

Permitting Pathway

The permitting path for aquaculture is a long and arduous process with multiple agencies and extended timelines, but winds of change are currently on the horizon with the Ocean Protection Council ushering in an Aquaculture Action Plan in the Summer of 2026 with an agenda to fund 3 kelp farms which our group believes is a perfect fit. SBCKF is seeking a 15-year lease with the California Fish and Game Commission which has the regulatory authority to administer State Water Bottom Leases. Santa Barbara Mariculture was issued a 15-year lease back in 2018 and has the experience and expertise to get through the regulatory system.

The Genesis of SBCKF

In May of 2024, Bernard Friedman was invited by Greenwave to tour and workshop two 20-acre kelp farms off the coast of Kodiak, Alaska. Greenwave is a national non-profit organization dedicated to supporting and replicating scalable regenerative ocean farms. Greenwave's mission is to train and support small scale farmers such as myself to become self-supported and vertically integrated kelp farmers.

I arrived in Kodiak as a skeptic and left 4 days later a believer in the future of kelp and the possibilities kelp can do for the planet. It was amazing to experience how a single planting of one kelp species could attract a variety of other edible kelp species, many which were delicious to eat straight from the farm. This workshop had 25 attendees, all kelp farmers, and it was very uplifting to hear both success stories and failures and the diversity of kelp products and processing techniques incorporated into individual farms.

The Generation of Permitting Efficiencies

SBCKF would like to see the programmatic permitting of native kelp species and gear types on which the kelp is grown. If there are to be future farmers of the sea, the creation of equity in the permitting pathway should be endorsed. Although everyone likes to be treated as individuals, the permitting pathway should give equitable license to farm kelp in the ocean particularly geared to the less wealthy future farmers of California's coastal zones.

SBCKF believes the regulatory system should look to Alaska and Maine for guidance on programmatic permitting. Individuals should not have to lobby the state of California every time they want to cultivate an additional species or change their gear type.

In the event, the State of California does not want to create an equitable permitting system, SBCKF is prepared to move forward with the following kelp species and gear types.

SBCKF will cultivate three native, high-value kelp species:

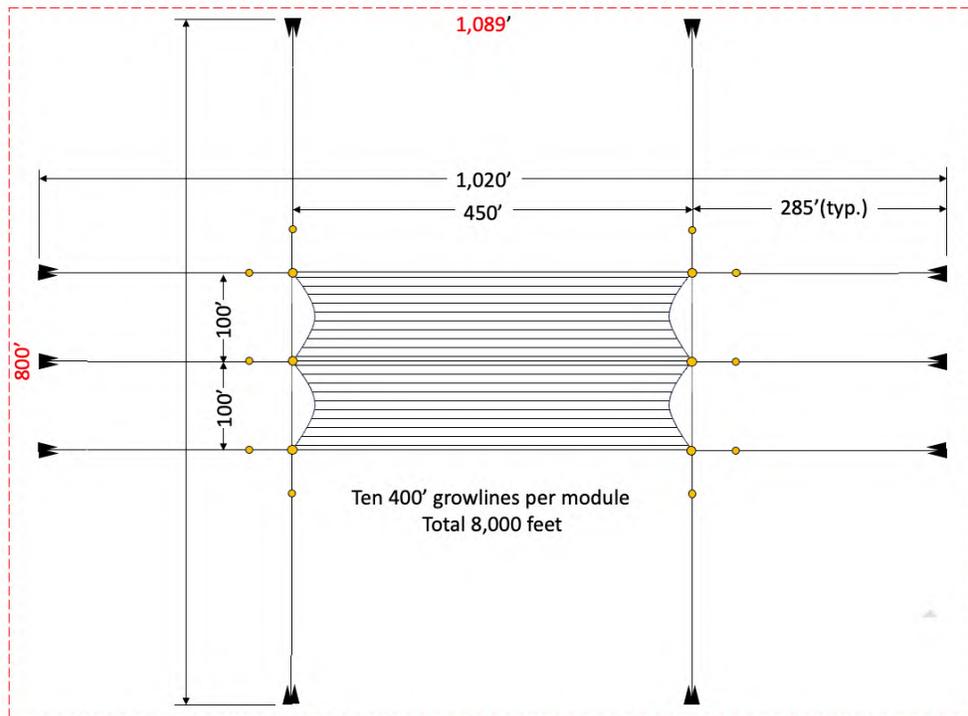
- ***Laminaria farlowii* (Golden Kombu):** High-value kombu species with strong food-market potential; high alginate content and well-suited to growline depths.
- ***Eisenia arborea* (Southern Sea Palm):** Warm-water tolerant and climate-resilient; approximately 65% alginate and high protein content; promising bioactive and nutraceutical profiles.

- ***Macrocystis pyrifera* (Giant Kelp):** Fast-growing canopy-forming kelp used for biomass, biostimulants, and feedstock; included as a targeted species in this project for demonstration modules.

Farm Module Design (Catenary Longline System)

The farm will use a robust catenary longline system designed to minimize drag, facilitate safe vessel access, and withstand storms.

Conceptual 100' x 400' catenary layout:



Summary

The Santa Barbara Community Kelp Farm represents a three-species, community-scale kelp aquaculture model in California state waters. By integrating high-value native kelps (*Laminaria farlowii*, *Eisenia arborea*, and *Macrocystis pyrifera*) with a proven catenary longline design and 75 kg JAYCO anchors, the farm is engineered for environmental resilience, educational use, and long-term economic viability. Local community letters of support have been obtained by the City of Santa Barbara (including Waterfront, Sustainability & Resilience, Public Works & Water Resources departments), Commercial Fisherman of Santa Barbara (CFSB) and Santa Barbara Community College.



City of Santa Barbara
City Administrator's Office

www.SantaBarbaraCA.gov

September 22, 2025

Santa Barbara Mariculture
Bernard Friedman
[REDACTED]
[REDACTED]

City Hall
735 Anacapa Street
Santa Barbara, CA
93101-1990

Mailing Address:
P O Box 1990
Santa Barbara, CA
93102-1990

Tel: 805-564-5305
Fax: 805-897-1993

RE: Proposed Santa Barbara Community Kelp Farm

Dear Mr. Bernard Friedman,

The City of Santa Barbara would like to express support for the proposed 20-acre Santa Barbara Community Kelp Farm to be located 1.5 miles southeast of the Santa Barbara Harbor.

City representatives from Waterfront, Public Works, Water Resources, and Sustainability & Resilience Departments met with Santa Barbara Mariculture on September 15, 2025, to review the proposed project. The project was also presented to the Santa Barbara Harbor Commission who expressed strong support.

The City's biggest concerns with the Kelp Farm operation are impacts to City Water Resources Operations and Infrastructure (desalination intake and wastewater outfall infrastructure). Based on the information provided, the project would likely create minimal impact that could be mitigated with the siting of the farming operation. Per our discussion, the most significant concern was siting the Kelp Farm to avoid the City's receiving water monitoring locations, which seem to be an amendable accommodation.

The City of Santa Barbara is especially supportive of the benefits this project could provide, including:

- Alignment with the City's Local Coastal Program in the support of ocean dependent uses, commercial fishing, and aquaculture.
- Increased economic activity related to aquaculture education and activities within the harbor.
- Alignment with the City's Climate Action Plan Carbon Sequestration efforts.

The City trusts in your ability and local knowledge and feels that Santa Barbara Mariculture can successfully and responsibly see this project through. We look forward to working with you in support of the Santa Barbara Community Kelp Farm project.

Sincerely,

Kelly McAdoo, City Administrator

Cc: Mike Wiltshire, Waterfront Director
Alelia Parenteau, Sustainability & Resilience Director
Joshua Haggmark, Water Resources Director
Brian D'Amour, Public Works Director



Please consider the environment before printing this letter.

October 8, 2025

Sergey Nuzhdin
Kelp Ark

San Pedro, CA

RE: Kelp Ark Funding Proposal – Letter of Support

Dear Professor Nuzhdin:

I am writing to express Santa Barbara City College's (SBCC) strong dedication to collaborate on your proposal for establishing the first offshore commercial kelp farm in CA waters, along with dedicated education and workforce development efforts. SBCC's Marine Diving Technology (MDT) and Environmental Studies (ES) programs are well positioned to expand existing educational pathways and related workforce development strategies and are in full support of the proposed kelp mariculture project led by Santa Barbara Mariculture and Kelp Ark.

This initiative represents an extraordinary opportunity to integrate commercial diving and marine technology training with cutting-edge sustainable aquaculture. Mariculture operations, including the construction, inspection, and maintenance of offshore farms, rely heavily on the specialized skills of surface-supplied commercial divers. Tasks such as installing anchors and grow lines, performing underwater inspections, conducting routine maintenance, and ensuring the structural integrity of mariculture systems are directly aligned with the training objectives of SBCC's MDT program. By participating in this project, our students would gain invaluable real-world experience in a rapidly expanding sector of the Blue Economy.

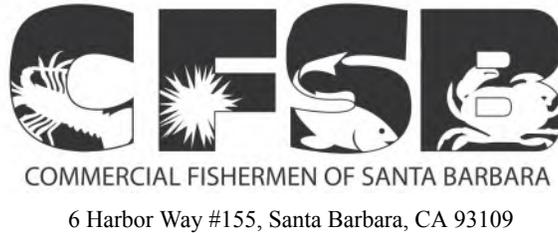
This project also presents a unique platform to deploy and train students on our newly acquired remotely operated vehicle (ROV) systems. ROVs are increasingly critical tools for aquaculture operations, providing efficient methods for data collection, crop monitoring, and inspection of farm infrastructure. Integrating ROV operations alongside diver-based work will give our students comprehensive exposure to the combined technologies used in modern mariculture. If SBCC's MDT and ES students are engaged in both the implementation and continued maintenance of the farm, they will benefit from hands-on experience operating a full surface-supplied dive spread aboard vessels while working in real-world mariculture environments. This type of applied training, anchored in live offshore projects, cannot be replicated in the classroom alone. It would prepare our students not only for traditional careers in offshore and inland commercial diving, but also for emerging roles in regenerative aquaculture, marine robotics, and Blue Economy industries.

For these reasons, we believe the Santa Barbara Community Kelp Farm project will provide transformative experiential learning for our students, support local workforce development, and strengthen the alignment of SBCC's MDT and ES programs with regional and national Blue Economy priorities.

Sincerely,



Jens-Uwe Kuhn, Ph.D.
Dean, Educational Programs



July 21, 2025

RE: Santa Barbara floating kelp farm project Proposal

To Whom it May Concern,

For over 40 years, The Commercial Fishermen of Santa Barbara (CFSB), a 501(c)3 non-profit organization, has been committed to making our local fishing community resilient and effective by providing healthy, high quality seafood to local and global markets, ensuring the economic and biological sustainability of fisheries, and maintaining California's fishing heritage. CFSB is a highly-respected association within the California fishing community and represents the interests of a diverse set of vastly experienced fishermen, divers, boat builders, and distributors who are leaders in the commercial fishing industry. On behalf of our organization, we write this letter to express our support for Bernard Friedman's proposed kelp farm off the coast of Santa Barbara.

Bernard served on CFSB's board for 5 years and has proven himself to be an extremely hardworking and trustworthy individual in the community. His successful mussel farm business, Santa Barbara Mariculture, is the byproduct of his impressive educational background, diligent work ethic, and unwavering commitment to his craft.

We believe this project presents a promising opportunity to explore the ecological, educational, and economic benefits of native kelp cultivation in the Santa Barbara Channel. The kelp farm's commitment to sustainability, vocational training, carbon and nitrogen sequestration, and culinary and agricultural applications aligns with our values and vision for a healthy, resilient working ocean.

This proposed farm speaks to the importance of aquaculture in California's Blue Economy and the fact that the California Coastal Act and Santa Barbara's Local Coastal Plan makes its promotion and development a top priority. Furthermore, this kelp farm would address and complement the objectives' of CFSB's academic-industry partnership with SBCC, the Ocean Collective. It also supports the objectives of the Ocean Protection Council regarding their plans to promote algal and bivalve aquaculture.

The proposed location—over sandy bottom in 50 to 70 feet of water and situated near the harbor but outside key navigation and fishing areas—demonstrates thoughtful planning and

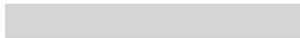


consideration of existing marine uses. As representatives of the local commercial fishing fleet, we appreciate this careful approach to siting, and support the project's intent to minimize conflicts with fishing and boating activities.

We look forward to remaining engaged in conversations around the development and integration of this project into the broader working waterfront and marine ecosystem of Santa Barbara.

Sincerely,

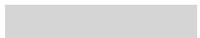
Chris Voss
President, CFSB



Kim Selkoe
Executive Director, CFSB



Ava Schulenberg
Assistant Director, CFSB



COMMITTEE STAFF SUMMARY FOR MARCH 20, 2019*For background purposes only***9. Shellfish Aquaculture best management practices****Today's Item**Information Direction

Receive DFW update on progress developing a proposed regulation to require best management practices (BMPs) plans for state water bottom leases issued by FGC for purposes of aquaculture.

Summary of Previous/Future Actions

- | | |
|---|--------------------------------------|
| • FGC discussed possible BMPs | Feb 10-11, 2016; Sacramento |
| • FGC supported BMPs rulemaking approach | Jun 22-23, 2016; Bakersfield |
| • MRC discussed aquaculture debris | Jul 21, 2016; MRC, Petaluma |
| • MRC update on BMPs development | Jul 20, 2017; MRC, Santa Rosa |
| • MRC update on management activities | Mar 6, 2018; MRC, Santa Rosa |
| • Draft BMP categories presented to MRC | Jul 17, 2018; MRC, San Clemente |
| • Draft BMP requirements presented to MRC | Nov 14, 2018; MRC, Sacramento |
| • Today's update | Mar 20, 2019; MRC, Sacramento |

Background

With the exception of Humboldt and San Diego bays, FGC has the authority to lease state water bottoms to any person for the purpose of conducting aquaculture in marine waters of the State, under terms agreed upon between FGC and the lessee (sections 15400 and 15405, California Fish and Game Code).

In 2016, FGC approved a staff recommendation to enhance lease stewardship through a regulation that specifies objectives that must be addressed by each lease holder in lease-specific shellfish aquaculture BMPs plans, and referred the topic to MRC (see Exhibit 1 for background).

Actions to date have included:

- Regular discussions at MRC meetings;
- MRC and FGC support of draft BMP categories developed by staff based on input at regional public meetings, and direction to develop proposed requirements (Exhibit 2);
- Draft proposed requirements for BMP categories developed by DFW and FGC staff (Exhibit 2), and public feedback on the draft proposed requirements gained through an Oct 2018 public meeting in Santa Rosa and written comments (Exhibit 3);
- MRC recommendation in Nov 2018, and FGC approval in Dec 2018, for staff to “revise the draft proposed requirements based on the public comments received; provide an opportunity for public review of the revised draft proposed requirements; and schedule the topic for MRC review and possible recommendation in Mar 2019.

COMMITTEE STAFF SUMMARY FOR MARCH 20, 2019*For background purposes only*

Following the last MRC meeting, staff began refining the draft BMP proposal; however, completing a revised draft proposal has been delayed due to multiple staff limitations and redirection of staff time toward completing a new legislative mandate. In particular, FGC staff medical leave and acting assignments created gaps, and both FGC and DFW staff have been re-directed to complete a legislatively-mandated, service-based budgeting process. The budgeting exercise includes documenting staffing and capacity needs for every service provided by DFW and FGC throughout the entire state, including aquaculture (over 3,500 service items have been identified). Following documentation of aquaculture services and associated staff time to provide those services, DFW and FGC leadership will meet to discuss strategies for completing the BMP project.

Today, DFW project lead Randy Lovell will provide any further updates.

Significant Public Comments (N/A)**Recommendation**

Temporarily place development of the BMPs plans regulation on hold and reassess the development timeline during the Jul 2019 MRC meeting.

Exhibits

1. Staff summaries from Jul 20, 2017 and Jul 17, 2018 MRC meetings (for background purposes)
2. *Proposed Requirements for Shellfish Aquaculture Lease Best Management Practices (BMP) Plans Regulation*, dated Oct 24, 2018
3. Staff summary from Nov 14, 2018 MRC meeting (for background purposes)

Committee Direction/Recommendation

MRC recommends that the timeline for developing an aquaculture BMPs plans regulation be reassessed at the Jul 2019 MRC meeting.

27 February, 2026

Comments from Richard James - submitted for FGC MRC meeting,
agenda item 3 (b), Best Management Practices

Commissioners,

As I have repeatedly suggested, going back to the first CFG meeting I attended (April 2015), enforceable BMPs are needed to ensure the public trust tidelands leased to shellfish growers are protected from damage by ongoing operations.

I continue to believe BMPs are needed and should be adopted asap and regularly enforced to ensure compliance.

What follows are some images I have collected during my 13-year ongoing effort to cleanup after the shellfish industry in Tomales Bay.

My focus will be on the need for growers to secure gear and to promptly and thoroughly perform cleanup activities after significant storm events that often damage gear and spread it far and wide.

One of the harms caused by this feral gear is that it becomes trapped in the substrate of the bay, acting like rip-rap, armoring the bay floor and impeding natural processes. This harmful activity has been going on for many, many decades.

A. 1982 – huge storm event buried the entire lease M-430-04. International Shellfish declares bankruptcy and walks away from huge mess trapped in mud.

B. 1995 - 2015 – dozens of unpermitted structures made of PVC pipes, bags, bags full of oyster shell, concrete pilings and wire are built by one grower to divert Walker Creek and the mud and bacteria it brings each winter away from his lease. After the removal of the largest of these structures, many hundreds (thousands?) of pounds of oyster shells are illegally spread on lease 430-04, 430-05 and perhaps other areas to “firm up” the soft mud substrate, making it easier for growers to walk the lease, and further corrupting natural processes in the bay.

NOTE: These diversions directed tainted water towards lease 430-15, likely causing a seasonal harvest closure from Oct.-Mar. each year for several years. CDPH has removed that special harvest closure for zone E of lease 430-15.

Please look at the two images from Google Earth in the addendum of the area where the last and most significant structure was removed. Notice how the flow of the creek has changed significantly.

Thanks to the work of the Coastal Commission, this large mess was removed and the creek is now allowed to flow more naturally.

C . 2015 - present day – Once the large structure just described was removed, the creek began to flow unimpeded, scouring out the mud covering the 1982 debris, causing large numbers of plastic bags to scatter far and wide at an accelerated pace.

D. Day 1 – present day – After storm events where gear is scattered far and wide, if it is not collected promptly it settles in the mud and vegetation or drifts out to sea. Late Dec. 2025 – Jan. 2026 a severe storm appears to have caused significant damage to lease 430-17. Hundreds of bags have been scattered all over the north end of the bay.

All of the events just described, A – D, contribute to the armoring of the bay floor in and around shellfish leases.

The act of growing shellfish all these years has been modifying the public trust tidelands, impacting or denying natural processes. The embedded “rip-rap” of all this lost oyster gear and shells makes for better shellfish growing conditions, at the expense of nature. That is wrong!

I urge The Commission to implement meaningful BMPs, and to enforce them.

Making suggestions to growers, without following up with consequences... well, you may as well not have BMPs then, as they will be ignored.

Images showing the situations described above in A-D are attached to the email you received this letter with.

A copy of the CDPH Addendum describing the removal of the seasonal harvest closure is also attached.

Thank you for your time and careful consideration of my suggestions.

richard james

coastodian.org

Best Management Practices for California Aquaculture

Why they are important
And needed

2026.03.12 MRC meeting, item 3B

Images by richard james

170 of the unknown iron racks and countless bags from 1982



2026.01.18 - Large field of 1982 legacy debris on M-430-04

Huge structure the last to be removed that diverted walker creek



Huge structure the last to be removed that diverted walker creek



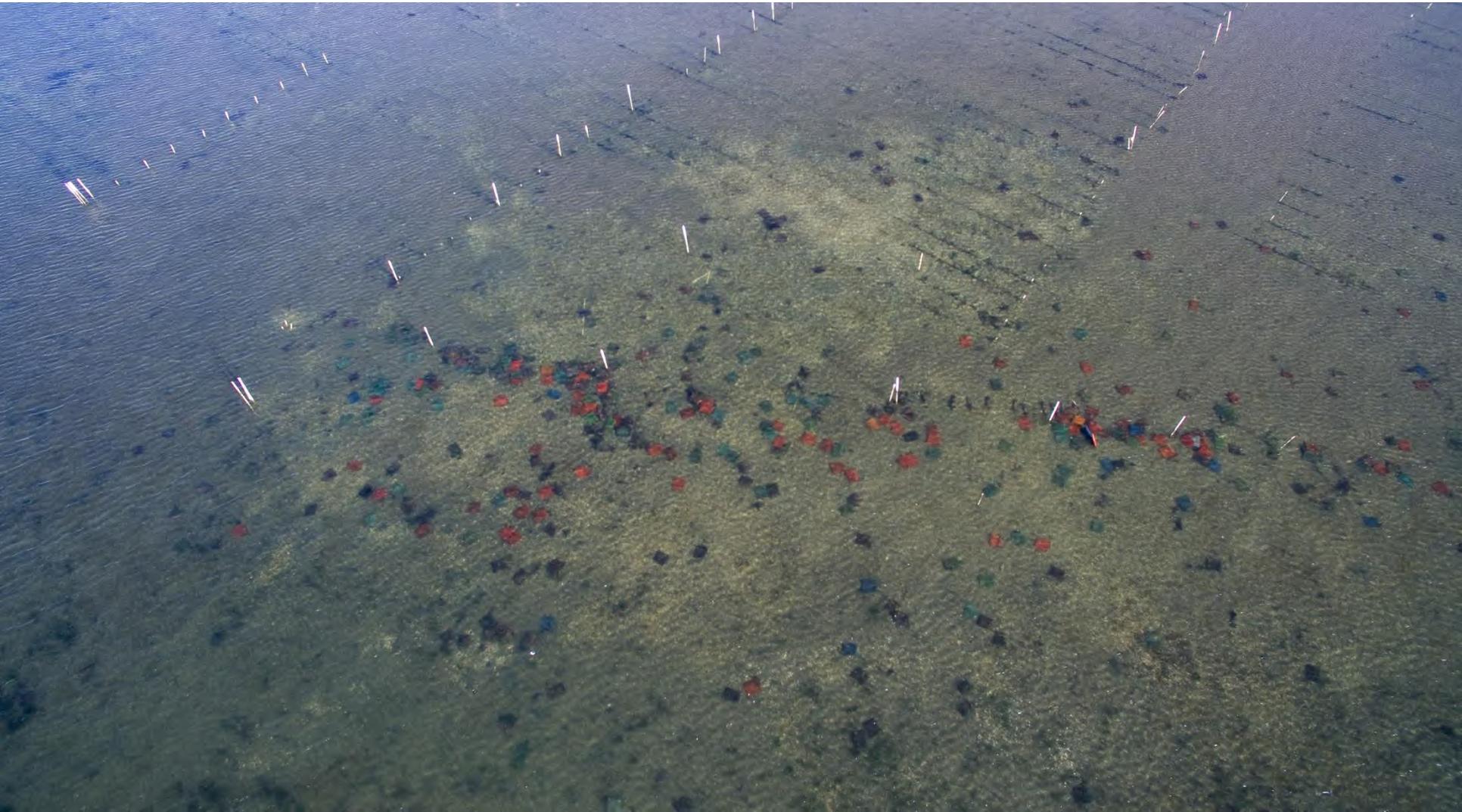
Another 760 foot long fence made of PVC pipes, oyster bags, plastic-coated wire





2026.0101 -remnants of an unpermitted diversion structure at Walker Creek

Light colored areas show where shells from the last structure removed were dumped on lease M-430-04. Shells were dumped in numerous areas on numerous leases.





2026.01.18 - Gear failure on 430-17 - likely source of loose bags



2026.01.18 - Gear failure on 430-17 - likely source of loose bags



2026.0101 - Feral shellfish gear at Walker Creek delta

2026.0101 - Feral shellfish gear at Walker Creek delta





**Addendum to
ANNUAL SANITARY SURVEY UPDATE REPORT: 2024-2025**

**SHELLFISH GROWING AREA CLASSIFICATIONS
FOR TOMALES BAY, CALIFORNIA**

**California Department of Public Health
Environmental Management Branch**

Prepared by

Sam Rankin
Environmental Scientist/ Sanitary Survey Officer
Preharvest Shellfish Unit

December 2025

The following text is added to the end of Section VIII.B. Classification Review (page 14):

4. Evaluation of Seasonal Closure of Lease M-430-15 in Zone E

In 2016, CDPH implemented a seasonal closure for the portion of lease M-430-15 in rainfall Zone E due to extended impacts to the growing area after reopening from rainfall closure (CDPH, 2016). The seasonal closure begins at the first storm after October 1 with a 24-hour threshold greater than 0.40 inch and lasts until March 31. The adjacent portion of the lease in rainfall Zone D remains *Conditionally Approved* throughout the wet season.

a. Conditionally Approved Evaluation

In November 2025, Hog Island Oyster Company (HIOC) requested a reevaluation of the seasonal closure of Zone E. In 2022, HIOC reported that there may have been changes to the path of Walker Creek flow entering the bay following large storms in 2018-2019, which may have affected water quality trends in Zone E. Particularly, it was reported that the main creek channel has straightened out and is not curving around Preston Point towards WQ 59. CDPH evaluated the seasonal closure in 2022, but kept the closure in place based on the limited available data (CDPH, 2022). In 2023, CDPH conducted a drogoue study in the outer bay to investigate the path of Walker Creek into the bay under high flow conditions (CDPH, 2023). The results of the drogoue study showed ebb tide flow spreading out to the west-northwest over the outer bay from the mouth of Walker Creek. Satellite imagery supports this showing a change in the Walker Creek channel, sometime between 2015 and 2018, in which a new main channel formed to the west, and the original channel leading to WQ 59 in Zone E appears diminished (Figures 5 & 6).

For the evaluation, CDPH reviewed all water quality data collected from primary stations in Zone E during the seasonal closure when Zone D was in open status from 2020-2025 (n=20) (Table 12). Thirteen sampling events ranged from 6 to 15 days since rainfall end of storm, with 24-hour storm maxima ranging from 0.42 to 2.02 inches, and 10-day storm maxima ranging from 0.97 to 9.29 inches. Seven sampling events occurred more than 20 days after the end of a storm causing rainfall closure. One sample was collected following subthreshold rainfall (0.33 inch) in the previous 24 hours. The geometric means for WQ 65 and WQ 59 are 3.1 MPN and 3.5 MPN, respectively, and the percent samples greater than 43 MPN are 5 percent for each station. The 5 percent represents one sampling event out of the 20 sample events evaluated. These samples were collected on February 26, 2025, approximately 12 days after the end of storm with a 24-hour storm maximum of 2.02 inches and a 10-day storm maximum of 5.88 inches. Both samples from Zone D stations collected on the same day were below 43 MPN.

A comparison of all data collected from Zones D and E during the seasonal closure when Zone D was open from 2016-2025 and from 2020-2025 is shown in Table 13.

Addendum to Annual Sanitary Survey Update Report: 2024-2025, Shellfish Growing Area Classifications for Tomales Bay, California

Both the geometric means and percent greater than 43 MPN decreased for all stations in the 2020-2025 data compared to the 2016-2025 data. This shows an improvement in water quality across lease M430-15 (Zones D and E) since 2020. This could be explained by the change in course of the Walker Creek channel as shown in the 2023 drogoue study.

A comparison of water samples collected from Zones D and E during the seasonal closure one day before reopening or on the day of reopening of Zone D after rainfall closure from 2020-2025 is shown in Table 14. The Zone D rainfall closure periods during these sampling events ranged from six to 12 days. Samples collected within one day of reopening should be 14 MPN/100 mL or less to allow shellfish to cleanse at the end of the closure period. Although the sample size is small, during these six sampling events, both Zone E stations had results greater than 43 MPN on one occasion, while Zone D had no samples greater than 43 MPN. This was due to one sampling event on February 26, 2025, previously discussed above. The impact was seen to a lesser extent in Zone D, with WQ 32 having a result of 33 MPN on the day of reopening. In addition, FC was slightly more elevated in Zone E than Zone D one day before reopening following a storm with 24-hour max of 0.48 inch and a 10-day max of 3.9 inches, with WQ 59 having FC greater than 14 MPN (17 MPN). These data show a need to keep the sampling to reopen requirement for Zone E, and also to continue sampling Zone D at reopening to verify the closure rules, especially following 12-day closures when the secondary threshold of 3.9 inches in 10 days is exceeded.

A comparison of oyster meat FC data collected during the Zone E seasonal closure from Zones D and E near reopening of Zone D is shown in Table 15. Only two meat samples from Zone E were collected near reopening since 2020, both when Zone D was closed. One sample collected on November 14, 2022, on the day before Zone D reopened contained 790 MPN per gram (g), compared to 260 MPN/g from Zone D, indicating a difference in shellfish cleansing in Zone E for this event. On this same day, WQ 59 contained 4.5 MPN/100 mL, indicating the area had returned to acceptable water quality (Table 14). Oyster meat data collected from 2016-2018 near reopening of Zone D were well below the benchmark of 230 MPN/g for shellfish meat quality, with three out of five Zone E samples having FC meat concentrations below those from Zone D. The majority of these samples (4 out of 5) were collected after Zone D reopened, allowing extra cleansing time.

To meet the *Conditionally Approved* classification, at least 15 samples collected from WQ 59 and WQ 65 during the seasonal closure period when D is open must have a FC geometric mean of no greater than 14 MPN/100 mL with no more than 10 percent of samples exceeding 43 MPN. The data for these stations shows that the geometric means and percent of samples over 43 MPN are within the *Conditionally Approved* classification. In addition, the data shows an improvement in water quality across lease M430-15 since 2020, but with a slight tendency for higher FC in Zone E than in Zone D following certain isolated events. CDPH recommends lifting the seasonal closure for Zone E and reverting to the rainfall closure rules for Zone D, with a sample to reopen requirement.

Addendum to Annual Sanitary Survey Update Report: 2024-2025, Shellfish Growing Area Classifications for Tomales Bay, California

The proposed rainfall closure rules for Zone E are presented in Table 16. Zone E will be subject to the rainfall closure threshold rules of Zone D. Zone E can only reopen after either (i) obtaining acceptable FC water quality result from stations 59 and 65 collected after Zone D is open, or (ii) 21 days after the last rainfall closure end of storm. The WQ results must be equal to or lower than 14 MPN/100 mL FC. Zone E is also subject to closure during extreme environmental conditions (> 3.00" in 24-hours or > 8.00" in 10-days). These rainfall rules and reopening criteria will be added to the Management Plan.

The following text is added to the end of section IX. Recommendations (page 15):

14) Remove the seasonal closure for Zone E. Zone E will be subject to the rainfall closure threshold rules of Zone D. Zone E can only reopen after either (i) obtaining acceptable FC water quality result from stations 59 and 65 collected after Zone D is open, or (ii) 21 days after the last rainfall closure end of storm. The WQ results must be equal to or lower than 14 MPN/100 mL FC.

Addendum to Annual Sanitary Survey Update Report: 2024-2025, Shellfish Growing Area Classifications for Tomales Bay, California

REFERENCES

- CDPH. 2016. Annual Sanitary Survey Update Report for Shellfish Growing Classifications in Tomales Bay, CA. California Department of Public Health, Environmental Management Branch, Preharvest Shellfish Unit. Technical Report No. 16-12. August 2016.
- CDPH. 2022. Annual Sanitary Survey Update Report for Shellfish Growing Classifications in Tomales Bay, CA. California Department of Public Health, Environmental Management Branch, Preharvest Shellfish Unit. Technical Report No. 22-21. November 2022.
- CDPH. 2023. Triennial Sanitary Survey Update Report for Shellfish Growing Classifications in Tomales Bay, CA. California Department of Public Health, Environmental Management Branch, Preharvest Shellfish Unit. Technical Report No. 23-25. September 2023.

Addendum to Annual Sanitary Survey Update Report: 2024-2025, Shellfish Growing Area Classifications for Tomales Bay, California

Table 12. Samples collected during seasonal closure of Zone E while Zone D was in open status 2020-2025.

Date Collected	Fecal coliform (MPN/100 mL)				24-Hour Storm Max	10-Day Storm Max	Days Since Rainfall End of Storm	24-Hour Total at Time of Sample	10-Day Total at Time of Sample
	Zone D		Zone E						
	WQ 31	WQ 32	WQ 65	WQ 59					
1/7/2020	2	2	9.3	4.5	0.82	1.84	8	0.01	0.93
2/4/2020	7.8	<1.8	<1.8	2	0.53	1.96	13	0	0.52
3/3/2020	4	<1.8	<1.8	4.5	-	-	>20	0	0.03
12/1/2020	<1.8	2	<1.8	<1.8	0.96	0.97	13	0	0.02
2/9/2021	2	4.5	7.8	11	0.54	3.22	7	0	0.57
3/9/2021	<1.8	<1.8	<1.8	<1.8	-	-	>20	0.33	0.61
12/10/2021	4.5	<1.8	2	2	-	-	>20	0	0.06
1/10/2022	2	<1.8	2	6.1	0.51	2.12	6	0	0.73
2/8/2022	2	23	<1.8	<1.8	-	-	>20	0	0.04
3/1/2022	<1.8	<1.8	<1.8	<1.8	-	-	>20	0	0.09
12/26/2022	<1.8	2	2	<1.8	0.53	3.78	14	0	0.03
1/30/2023	26	13	13	4.5	0.92	8.86	14	0	0.03
2/20/2023	2	<1.8	<1.8	<1.8	0.47	1.17	15	0.01	0.08
1/11/2024	2	<1.8	<1.8	<1.8	0.87	3.45	8	0.02	1.14
3/19/2024	2	2	2	4.5	0.69	1.82	8	0	1
12/11/2024	2	<1.8	7.8	4.5	0.42	9.29	15	0	0.03
1/10/2025	<1.8	7.8	4.5	17	0.47	1.97	7	0	0.49
1/28/2025	2	<1.8	<1.8	<1.8	-	-	>20	0.01	0.01
2/26/2025	11	33	46	49	2.02	5.88	12	0	0.08
3/11/2025	2	<1.8	<1.8	<1.8	-	-	>20	0	0.1
Geometric Mean	2.8	3.1	3.1	3.5					
Percent > 43	0	0	5	5					
n	20	20	20	20					

Addendum to Annual Sanitary Survey Update Report: 2024-2025, Shellfish Growing Area Classifications for Tomales Bay, California

Table 13. Data summary of all fecal coliform samples collected from 2016-2025 during seasonal closure when Zone D was open and Zone E was closed.

	Zone D		Zone E	
	WQ 31	WQ 32	WQ 65	WQ 59
	Date Range 2016-2025			
Geometric mean (MPN/100mL)	3.4	4.1	3.9	6.0
Percent > 43 MPN	3	8	10	14
n	37	36	29	37
	Date Range 2020-2025			
Geometric mean (MPN/100mL)	2.7	3.2	3.1	3.5
Percent > 43 MPN	0	0	5	5
n	23	22	20	20

Addendum to Annual Sanitary Survey Update Report: 2024-2025, Shellfish Growing Area Classifications for Tomales Bay, California

Table 14. Water samples collected during seasonal closure of Zone E one day before reopening or day of reopening of Zone D, 2020-2025.

Date collected	Fecal coliform (MPN/100 mL)				24-Hour Storm Max	10-Day Storm Max	Days Since Rainfall End of Storm	24-Hour Total at Time of Sample	10-Day Total at Time of Sample	Closure Length	Zone D Reopen Notes
	Zone D		Zone E								
	WQ 31	WQ 32	WQ 65	WQ 59							
1/10/2022	2.0	<1.8	2	6.1	0.51	2.12	6	0	0.73	6	Day of reopening
11/14/2022	-	4.0	-	4.5	0.66	1.22	5	0	1.06	6	1 day before reopening
2/27/2024	4.5	4.5	13.0	17.0	0.48	3.9	5	0	3.5	6	1 day before reopening
2/26/2025	11.0	33.0	46	49	2.02	5.88	12	0	0.08	12	Day of reopening
3/24/2025	4.5	4.5	2.0	2.0	1.1	2.6	6	0	1.2	7	1 day before reopening
11/24/2025*	4.5	7.8	7.8	2.0	1.02	2.82	6	0.01	1.43	7	1 day before reopening
Geometric Mean	4.6	5.8	7.1	6.7							
Percent > 43 MPN	0	0	20.0	16.7							
Percent > 14 MPN	0	16.7	20.0	33.3							
n	5	6	5	6							

*Data not QC'd

Addendum to Annual Sanitary Survey Update Report: 2024-2025, Shellfish Growing Area Classifications for Tomales Bay, California

Table 15. Zone D and E oyster meat fecal coliform results near reopening of Zone D during seasonal closure, 2016-2025.

Sample Date	Zone D		Zone E		Zone D Reopen Notes
	FC MPN/g	Status	FC MPN/g	Status	
10/24/2016	45	O	20	C	1-2 days after reopen
11/10/2016	330	C	20	C	1 day before reopen
3/13/2017	78	O	20	C	1-2 days after reopen
3/9/2018	20	O	45	C	1-2 days after reopen
12/13/2018	<18	O	20	C	1-2 days after reopen
11/23/2020	68	C	-	C	2 days before reopen; past 24 hold time
11/14/2022	260	C	790	C	day before zone D reopened
2/26/2025	130	O	-	C	day of reopening
3/24/2025	130	C	-	C	day of reopening
10/20/2025	20	O	-	C	day of reopening
11/24/2025*	20	C	20	C	day of reopening
Geometric Mean 2016-2025	70		38		
n	11		7		
Geometric Mean 2020-2025	70		126		
n	6		2		

*Data not QCd

Addendum to Annual Sanitary Survey Update Report: 2024-2025, Shellfish Growing Area Classifications for Tomales Bay, California

Table 16. Proposed rainfall closure rules for Zone E.

Rainfall Management Zone	Rainfall Thresholds¹ 24-Hour Cumulative Rainfall Total >	Closure Length = End of Storm Plus Below:	Prior 10-day Cumulative Rainfall >
D. OUTER BAY: West of WQ #32 (portion of lease M-430-15)	0.40 Inch 0.67 Inch	144-hours (6-days) 168-hours (7-days)	<u>3.90 inches</u> Add 120-hrs (5-days) Add 120-hrs (5-days)
E. OUTER BAY: Area represented by WQ #59 and #65 (portion of lease M-430-15)	0.40 Inch	Reopening either (i) obtaining acceptable FC water quality result from stations 59 and 65 collected after Zone D is open ² , or (ii) 21 days after the last rainfall closure end of storm.	
Extreme Environmental Conditions	3.0" in 24 hours 8.0" in 10 days	All growing areas must sample to reopen	

¹ Start Closure when the approved rain gauge exceeds minimum threshold limit for the Rainfall Zone.

² The WQ result must be equal to or lower than 14 MPN/100 mL FC.

Note: Start of Closure and Closure Length is reinitiated and recalculated each time 24-hour cumulative rainfall threshold is exceeded (including during periods in which closure is already in effect). However, if 10-day cumulative rainfall closure lengths exceed recalculated closure lengths, the 10-day cumulative rainfall closure lengths shall continue to apply.

Addendum to Annual Sanitary Survey Update Report: 2024-2025, Shellfish Growing Area Classifications for Tomales Bay, California

FIGURE 5. 2015 View of Outer Tomales Bay and Walker Creek Channel with WQ Stations 59 & 65 in Zone E.



Addendum to Annual Sanitary Survey Update Report: 2024-2025, Shellfish Growing Area Classifications for Tomales Bay, California

FIGURE 6. 2018 View of Outer Tomales Bay and Walker Creek Channel with WQ Stations 59 & 65 in Zone E.

