



# Kerckhoff Marine Lab Newsletter



*Spring 2024*



# KML Construction



We are under construction here at KML! For the last few months, contractors have been hard at work repairing the exterior of the lab. With the seaside location and the building approaching 100 years, the exterior of the facility has seen some noticeable wear. A full exterior renovation of the facility is underway, which will repair all deteriorated concrete, updated railing, roofing, and painting the building. If you find yourself in Corona del Mar this summer, be sure to come check out the new updates!

**Upper Left:** Current KML covered in scaffolding while under construction  
**Upper Right:** Project signage at the front entrance of KML.  
**Lower Left:** Deteriorated concrete removed exposing original reinforcement rebar.  
**Lower Right:** Newly patched concrete spall.



# Seawater Filtration



**Top:** Previous sand filters in filtration room at KML.

**Lower Left:** Newly installed filtration room with automated filters.

**Lower Right:** Contractors installing holding tank in KML tower room.

We have also been making some upgrades to our seawater filtration system. For decades, KML has been utilizing these sand filters you see to the left to clean their on-site seawater. These filters had significantly degraded in performance over the years, so the filtration system was redesigned and installation is nearly complete.

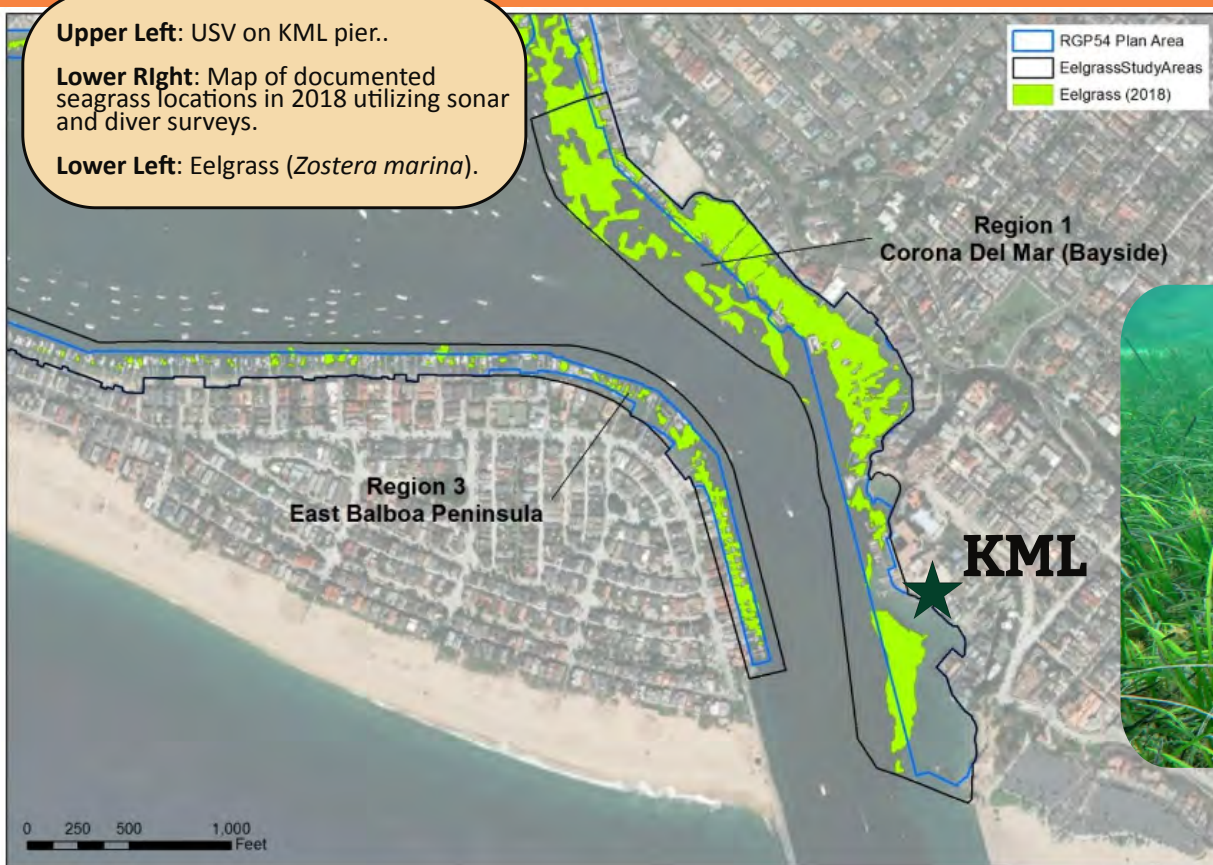
The bottom left photo shows the newly upgraded seawater system that includes a state-of-the-art drum filter that is fully automated to perform at maximum efficiency. Seawater is then polished in additional bag filters and sterilized with newly installed ultraviolet sterilizers. Filtered seawater is then pumped up into the tower on top of the building where it is distributed throughout KML all via gravity!



# Research Highlight



We have been working this spring to outfit an uncrewed surface vehicle (USV) with equipment for imaging and mapping the seagrass beds by KML in China Cove. This project, funded in part by a grant from Caltech's Center for Autonomous Systems and Technologies, brings together the expertise of biogeochemists and engineers to study our local marine ecosystem. Newport Beach has long been monitoring seagrass in the Bay using diver and sonar surveys. With our USV, we hope to be able to survey more frequently and to provide more detailed assessments of both health and extent of this critical habitat.



**Upper Left:** USV on KML pier..

**Lower Right:** Map of documented seagrass locations in 2018 utilizing sonar and diver surveys.

**Lower Left:** Eelgrass (*Zostera marina*).



# Organism Spotlight

## Warty Sea Cucumber

(*Apostichopus parvimensis*)

This marine invertebrate is often seen crawling along intertidal and subtidal reefs ranging from Baja California, Mexico up to Monterey Bay, CA. While they appear to resemble slugs, they are members of the echinoderm phylum which also include seastars and sea urchins. Their mouths are surrounded by ten retractable tentacles that are used to bring food in as you can see in the photo below of the cucumber at KML. They feed on detritus (small particles of organic matter) and small organisms living in sediments.

One unique adaptation sea cucumbers have developed is when threatened, they can expel their guts in order to defend themselves and then re-grow their organs afterward.



Photo Cred: Monterey Bay Aquarium

**Above:** Warty sea cucumber in the wild

**Below:** Warty sea cucumber searching for food in aquarium at KML.

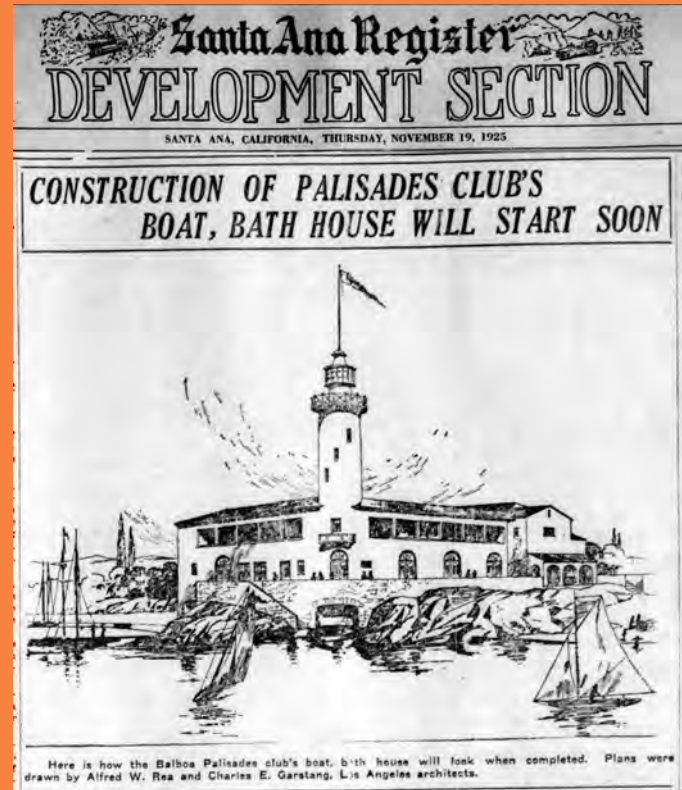


# KML History

## Balboa Palisades Club (1926-1930)

Prior to the establishment of Kerckhoff Marine Laboratory, this historic facility was originally built as the Balboa Palisades Club in 1926. The club was designed to be one of the premier boat clubs in California. Most of its members resided in the warmer inland towns of LA County, including many from Pasadena, and used the facility to escape the heat during hot summers.

However, due to ongoing litigation and the onset of the Great Depression in 1929, the club began to run into financial difficulties. This timing proved fruitful for Thomas Hunt Morgan, who joined Caltech and founded the Division of Biology in 1928. Morgan spent time in Newport Bay collecting and studying marine organisms, and he advocated for a Caltech marine station. His friends Arthur Amos Noyes and Ernest Swift (both Caltech chemists) were members of the Balboa Palisades Club. Together, Morgan and Noyes were instrumental in spearheading the purchase of the club and the establishment of the Kerckhoff Marine Lab in 1930.



**Above:** Article from the Santa Ana Register announcing construction of the Balboa Palisades Club (1925).

**Below:** Photo of China Cove and early days of KML from the Orange County Archives (early 1930s).

Orange County Archives



# Stay Tuned for Summer Events!



**Upper Left:** KML at sunset, Catalina Island in the background.

**Upper Right:** KML at our first "Science and Sunsets" event in 2023.

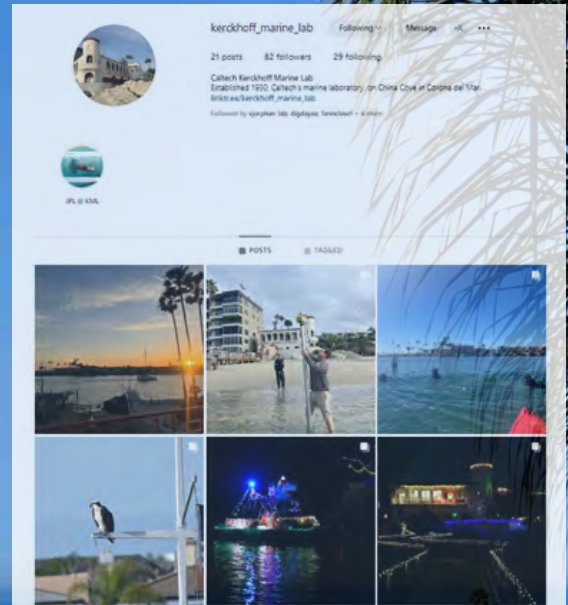
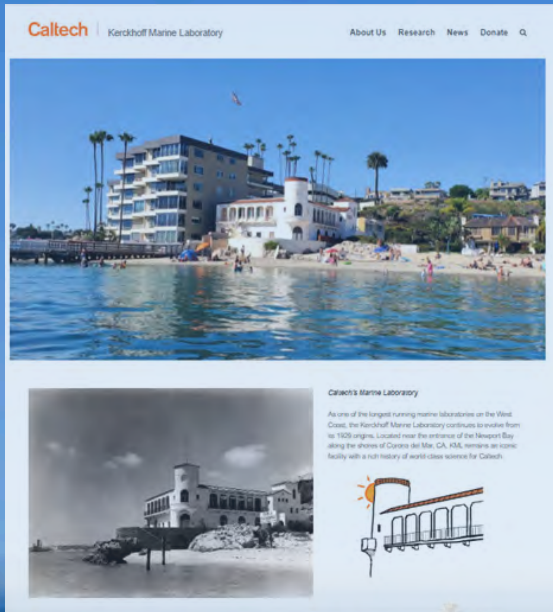
**Bottom:** "Science and Sunsets" attendees enjoying the sunset prior to speaker.



After the current construction wraps up on the facility this year we hope to soon announce the start of our 2024 "Science and Sunsets" series. These events offer a chance for the public to visit the facility and discover more about the exciting research going on at KML, Caltech, and other local institutions. In addition to a featured speaker, attendees are given an opportunity to tour the lab and learn more about the history of KML. Be sure to look out for invites for these events and more!



# For More Info



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