

**MONTEREY BAY NATIONAL MARINE SANCTUARY
ADVISORY COUNCIL**

**Member Announcements
April 2020**

Non-Governmental seats

At-Large northern region

Dan Haifley (primary)

Although many of the programs that the Monterey Bay National Marine Sanctuary Foundation funds are in hiatus due to the COVID 19 stay at home directive and social distancing, work continues on fundraising, social media and advocacy. Thank you for your continued support!

At-Large southern region

P.J. Webb (primary)

Current Seat Activity

- Coastal Discovery Center - is closed. Former CDC Founding mother Michele Roest will be back working at the Visitors' Center in San Simeon
- Elephant Seal Advisory Group - Attended two final meetings for the season with ESAG - collaboration between State Parks, FES, The Marine Mammal Center, the Piedras Blancas Light Station and MBNMS Friends of the Elephant Seal has done a great job on the William Randolph Hearst Memorial Beach (aka the "Cove") providing trained FES docents to interpret and advise beachgoers about the male elephant seals and weaners on the beach during e-seal season. So far, they have had docents on the beach for 42 days and collected statistics about beach goer interactions contributing 800 volunteer hours to protecting the animals and doing education and outreach. Disturbances were divided by category – people too close to animals; interactions with dogs/seals; people throwing rocks at the animals and goading them to charge. The rangers were called in 10% of the encounters where the harassment reached a significant level. Photos were also taken. This kind of data can really help in developing and perfecting strategies for "our" beach. FES has provided a great services to the Sanctuary and California State Parks in deterrence of wildlife on the beach where the CDC is located.
- Citizen Science ongoing monitoring and surveying programs BeachCOMBERS, LiMPETS and Snapshot Day are cancelled. There will be a COVID data gap and I miss the beach walks!

Upcoming Activities

- I plan to get out of my pajamas more often.

Your Constituent Challenges and Concerns

- Our community's socio-economic basis is frozen and we're scrambling to get food banks supplied
- Our very few local healthcare options are backed up and now one provider is pulling out altogether

Business/Industry

Tom Rowley (alternate)

- OVERVIEW: Actions by all levels of gov't in response to the Covid-19 Pandemic have shut down all but so-called "essential" business activities in the MB Region of Monterey + Santa Cruz + San Benito counties... Specific mitigations of "Social Distancing" and "Shelter-In-Place" have effectively closed down all aspects of the Hospitality / Tourist industry in the State and MB Region. For example, city of Monterey has "lost" 35 % of its General Fund income from Transient Occupation Taxes (TOT) -- effectively starting in mid-March. Fortunately -- Agricultural output of the Salinas Valley -- the "Salad Bowl" of the US and the World -- is continuing to produce invaluable crops -- Thanks to positive steps taken in March by Monterey County and all key components the Agricultural industry in Salinas Valley

-- to include specific measures to protect farm workers and the means for harvesting and distributing agricultural crops...

- With no fixed date at this time for the re-opening of either the National or State economies -- all levels of local MB gov'ts are struggling to make emergency financial adjustments, while adopting special relief programs, for both the short-term through May / June and eventually the remainder of the FY 2020-2021. The CARE Act at the Federal level will eventually assist local businesses by providing "Payroll Protection" to span a period for a few months for employees of some local businesses... Various loan and grant programs may also assist small businesses to survive and eventually re-open. A moratorium on housing evictions has removed the threat of major household displacements.
- According to media reports -- as of April 10th -- the peak number of cases and casualties from the Coronavirus may actually take place in mid-April in most States / Regions of the US. However, it now appears unlikely that the current mitigation measures adopted nationally and in California will end before June... Consequently -- safe "reactivation" of the State and local tourism industry may not occur before July or August.
- FUTURE ECONOMIC FORECAST: Lack of water for housing and businesses remains the major limiting factor for future economic growth on the Monterey Peninsula (MP) and in Monterey County. At this time -- A long-term sustainable water supply from a proposed Desalination Plant is the critical missing component of the MP Water Supply Project (MPWSP). A second component of the MPWSP -- Pure Water Monterey (PWM) project (groundwater recycling) -- become operational early this year, with an expected annual production of 3,500 AFY. The third component -- Aquifer Storage & Recovery (ASR) -- thanks to heavy rains in March and early April (after low rainfall in Jan & Feb) has provided sufficient water flows in the Carmel River to allow additional injection of "excess" flows into the Seaside basin. The major question now pending is consideration of an appeal by California American Water (CAW) for a permit for the slant well intake system at the site of the CEMEX sand plant in Marina for the proposed 6.4 mgpd desal project. A decision was delayed by the California Coastal Commission (CCC) from Nov 2019 until later this year -- possibly in September in San Luis Obispo.
- Because of difficulty meeting with gov't and business officials during the current pandemic, I have delayed personal distribution of framed copies of the 2 X 3 foot maps of the MBNMS.

Commercial Fishing

Charlie Lambert (alternate)

The supply chain for distribution of local species such as Dungeness Crab, Sablefish, Hagfish (slime eel), Rockfish, Halibut etc. *was* greatly severed as a result of the shelter in place clause mandated by the state from the COVID-19 growth. Since then it has slowly started to rebound. What the situation has done has caused local fishermen and relating businesses to rely on a more direct-to-consumer model for the distribution of local catch. Nevertheless, the direct local community can only handle so much local catch and overall it has restricted some of the local fishermen from being able to actually go fish; because they have nowhere to sell it. Below is an article that I was quoted in that explains much of this, it was featured on KAZU over the last few days.

<https://www.kazu.org/post/local-fishing-industry-sees-silver-lining-amid-coronavirus-crisis>

As far as landings of the commercial catch, I have been seeing pretty regular landings of local Sablefish, Halibut, Chilipepper/Bocaccio Rockfish. The fishermen are stressed about how regulation could change and we all are closely monitoring the Pacific Marine Fisheries Council meetings and the National Marine Fisheries Service assessments.

The next big opening here locally is for local Chinook aka King Salmon which is supposed to open commercially on May 1st. HOWEVER, the local recreational season was slated to open April 4th and was closed down by the state only 3 days before the opener for the extent of April. This being said things are rapidly evolving and really it goes to show that the commercial season could change up to just a few days before the opener. Overall, we're taking it all day by day.

Conservation

Katherine O'Dea (primary)

Current Seat Activities

- Many conservation organizations in our community are hurting from the COVID-19 situation. Like Save Our Shores, most are finding it difficult to continue with regular programs and projects. Those that offer environmental education are working to transition to virtual delivery with various success depending on the capabilities of the different schools we work with.
- Revenue is dropping off for many conservation organizations and emergency funding from our two community foundations is not reaching our organizations. They are prioritizing funding for organizations that deliver human, social and medical services – rightly so.

Your Constituent Challenges and Concerns

- Staying alive and relevant through the shelter in place and social distancing situation.

Diving

Keith Rootsart (alternate)

Current Seat Activities

- Advancing Petition 2020-001 before the Fish and Game Commission by executing a letter writing campaign and asking divers to attend the meeting by video conference on April 15, 2020 at 9:00. This petition is to allow recreational divers to remove urchins from select areas in south Monterey bay. Facebook campaign reached over 72,064 California divers with 8,628 post engagements and 65 clicks with two single day ad buys, for \$325.85.
- Outreach well over 100k diving contacts. It is unknown how many letters were sent into the Fish and Game Commission but my estimate is over 100 letters. I didn't cherry pick the market or the responses and I am not privy to all that was written, but I feel confident that most of them, maybe all of them are proponents. I have received many heartfelt letters shared with the group.
- Created Giant Kelp Restoration Project Facebook page which has over 327 followers and a fundraising button that received \$1,200 in three days. Funds will be used to pay for fishing licenses for students and military so they can participate in recreational urchin removal efforts.
- Working on PSA video with Corriolis films to answer 4 common questions on the urchin crisis.
- Worked with local Aromas author Joyce Oroz to write a story on the urchin crisis which was sent to local newspapers. I don't know who picked it up.
- Contacted local government leaders: Senator Bill Monning, and Assemblyman Robert Rivas, Jimmy Panetta and Paul Michel.

Upcoming Activities

- Fish and Game Commission meeting by video conference on April 15, 2020 at 9:00. Public comment presentation submitted and solicited from divers.
- If the Petition is advanced the project will have to be further developed in cooperation with CDFW for approval at the June FGC meeting.
- Presenting to the San Jose Flipper Dippers via webinar on April 15 at 7:30 to go over the urchin crisis, experimental efforts, and the recreational diver project. Webinar link coming soon. The event will be recorded for a future video.
- Trying to establish with Nichole a meeting of the charter committee with other SAC members.
- I will reapply to be a diving representative by the May 15 deadline.

Your Constituent Challenges and Concerns

- The kelp in Monterey is disappearing at San Carlos beach, the most popular dive site on the west coast of North America. Urchin density increased dramatically in 2019 and the urchins are eating the live kelp.
- Divers want to get rid of the urchins. When diver sentiment is 99% that is considered a mandate.
- Lots of divers are wondering when they can go diving again. Rules don't address divers specifically, but most rules exclude swimming and kayaking and the beaches themselves are closed in many locations.
- All the local dive shops are closed and full tanks are a closely held commodity like toilet paper.

- A few locals divers are quietly diving in small groups while practicing social distancing. This activity seems to be permitted for the time being by local police but if it becomes a problem with too many divers the police will probably act to shut it down. Surfers are being ticketed in Santa Cruz so divers share this concern and don't want to be fined. Primarily guidance is to not cross county lines and to not engage in risky behavior that would endanger first responders should an accident occur.
- Urchin smashing is now allowed at Caspar Cove in Mendocino but the beach is closed so divers can not physically cross the beach to get to the water. Everything is on hold for that project.

Assistance or Request of SAC Executive Committee

- Invite SAC members, especially Chair Brian Nelson, to attend the fish and game commission meeting on April 15 at 9:00. <https://fgc.ca.gov/Meetings/2020>

Assistance or Request of MBNMS Staff

- I asked Paul Michel to please write a letter of support consistent with SAC resolution to cooperate and collaborate with CDFW on urchin removal activities. I don't know that Paul sent that in to sonke.mastrup@wildlife.ca.gov Sonke.Mastrup@wildlife.ca.gov but that would go a long ways to getting us over the line.

Related Web Links to Member Report

- <https://www.facebook.com/UrchinsKelpOtters>
- <https://g2kr.com/>
- <https://fgc.ca.gov/Meetings/2020>

Miscellaneous Information:

Thank you Jose Montes, Fishing Primary and Phil Sammett, past diving Primary, for helping my Reef Check buddy Vince Christian, launch his homemade boat. The boat ended up leaking and sadly was relegated to landfill.

Education

Pamela Neeb Wade (primary)

Current Seat Activities

- Due to COVID19- California schools will remain closed for the remainder of the 2019-2020 school year and learning has switched to online instruction. This dramatic change in instruction and learning is requiring teachers, parents and students to try new approaches to learning at home.
- Many informal education centers; including museums and nature centers, are sharing online curriculum, virtual tours and webcams.
- I reached out to the members of the Monterey Bay Environmental Educators (MBEE) group to see how they would like to receive SAC updates. I will be participating in their meetings and sending email communications.
- The Education alternate seat is open.

Upcoming Activities

- Science institutions are creating and posting distance learning resources on their websites. These include; Pacific Grove Natural History Museum, Monterey Bay Aquarium, Monterey Bay National Marine Sanctuary, and Monterey Bay Aquarium Research Institute.
- Earth Day is on April 22nd
- Watsonville Wetlands Watsonville Wetlands Watch is planning a virtual Earth Week for Pajaro Valley High School
- Ocean Guardian School Application. Applications due by June 1st.

Your Constituent Challenges and Concerns

- This is a very challenging time for teachers and informal educators who are teaching remotely and implementing virtual platforms. Educators are working hard and focused on supporting their students.
- There is concern over loss of funding for education and what this will mean for non-profit organizations.

Related Web Links to Member Report

- PG Natural History Museum- museum to you
<https://www.pgmuseum.org/museum-to-you>

- Monterey Bay Aquarium- online courses
<https://www.montereybayaquarium.org/for-educators/learning-at-home>
- Monterey Bay National Marine Sanctuary- classroom resources
<https://montereybay.noaa.gov/educate/classroom.html>
- Monterey Bay National Marine Sanctuary- classroom resources
<https://montereybay.noaa.gov/educate/classroom.html>
- Monterey Bay Aquarium Research Institute: curriculum and resources
<https://www.mbari.org/products/educational-resources/science-at-home/>
- National Marine Sanctuaries Ocean Guardian School Application is open and applications are due by June 1st.
https://sanctuaries.noaa.gov/education/ocean_guardian/application.html?utm_medium=email&utm_source=GovDelivery

Recreational Fishing

Jose Montes (alternate)

Current Seat Activities

- Monitoring on-going changes to fishing seasons and regulations.
- Relaying updated changes through various fishing websites and blogs.
- Noting reactions from recreational anglers regarding changes due to Covid-19 restrictions.

Upcoming Activities

- Monterey Bay Veterans Big Fish Derby (scheduled for May 5) postponed until October.
- Fish and Game Commission meeting April 4-10. Waiting for final decisions then will disseminate information online.

Your Constituent Challenges and Concerns

- Quarantine regulations closed Monterey Bay boat trailer ramps to recreational anglers. Boaters with boats in slips still allowed to fish, albeit minding physical distancing recommendations. Recommendations are for solo boat owner or with individuals sharing household.
- Some adverse postings noted on fishing forums and blogs from anglers being prohibited from launching boats to fish, while owners of slipped boats are allowed to fish recreationally.

Assistance or Request of MBNMS Staff

- Assistance posting Recreational Fishing Newsletter

Related Web Links to Member Report

- Sport fishing closure proposals https://www.sacbee.com/sports/outdoors/hunting-fishing/article241808126.html?fbclid=IwAR3GGah8CNnLi8aJWa7talLYO-ermNLia3fteDA_HzATVPrxvQqGbInD-z0
- PFMC meetings online https://www.pcouncil.org/council_meeting/april-3-10-2020-council-meeting/
- F&G Commission may transfer authority to CDFW for possible Closures
<https://cdfgnews.wordpress.com/2020/04/07/california-fish-and-game-commission-to-hold-emergency-meeting/?fbclid=IwAR3kkwuxfxLuN2j676zySBSLxu7nTupeX9hrwcpkcP2x00PwunwFAPL0TCI>

Miscellaneous Information

Reaching out for applicants who would be interested in vying for the Alternate Recreational Fishing seat. Individuals I think may be interested first, then I'll post in open forums online.

Tourism

Mike Bekker (primary)

Hotel & Restaurant are closed, golf has been closed, beaches are closing our Parks & Aquarium is closed and 99% of our shops are closed

Governmental Members

California Coastal Commission

Dan Carl (primary) and Tami Grove (alternate)

Update (as of April 6, 2020) - We send out all of our best thoughts to the SAC and Sanctuary employees and the entire Sanctuary community. Just wanted all to know that public counter hours for all Coastal Commission offices are currently suspended in light of the coronavirus. However, in order to provide the public with continuity of service while protecting both the public and Commission employees, the Commission remains open for business, and you can contact staff by phone, email and regular mail (see staff contact information at www.coastal.ca.gov/contact). Things may take a little longer than usual during this period of time, and we appreciate your patience.

In addition, I wanted to let you know that the Coastal Commission has been working closely with state and local health departments, state and federal agency partners, local governments, and a variety of other public agencies and private entities to help support the shelter in place orders, including as it relates to temporary public access closures. We have a process in place to waive coastal permit requirements for certain temporary access closures designed to facilitate appropriate social distancing, and more information can be found at our website (www.coastal.ca.gov).

These are clearly unprecedented times, and we hope that you and yours all are staying safe and healthy. Will leave you with some words from our Executive Director. This letter was sent to our local government counterparts on March 24th, but the sentiment clearly continues to apply, and to apply more broadly to also extend to our Sanctuary other federal/state partners as well. Take care!

My friends and fellow public servants in local government,

I just want to take a moment to let you know how much I value your leadership and collegiality as we all struggle to cope with this ever-changing new reality. These are trying and unprecedented times. And yet, when things are at their worst, we have the capacity to be our best selves. From what I have seen in these past two weeks, I am so impressed with how our local leaders are stepping up; making tough decisions about how best to serve and protect coastal communities. I am truly grateful for and moved by your commitment.

You are on the front lines of this battle, and your local knowledge of evolving conditions in your community is paramount to sound decision-making. I know this isn't easy for you, your families or your constituents.

California's coastal communities pride themselves on sharing their unique attributes with the broader public. Coastal access is a hallmark of the state's collective character and, while empty beaches have a distinct and undeniable beauty, there is more than a tinge of sadness at the sight of them under these circumstances.

From all we know, things are likely to get worse before they get better. I want you to know that the Coastal Commission is here to assist in any way we can, as you consider and balance the benefits of public recreational access with the risks of over use. We understand that the pros and cons are highly localized and changing rapidly. There is no single "right" decision for every beach, park and trail in the state, and I trust you to make the prudent, rational compassionate choice.

More than anything, I look forward to celebrating with you in the near future when this crisis has passed, we emerge from our homes, and we once again welcome each other into our communities to enjoy the restorative magic of California's incomparable coast and ocean.

In the meantime, be well, stay safe, and look forward to brighter days,

John Ainsworth

Executive Director

California Coastal Commission

California Department of Fish and Wildlife

Paul Reilly (primary) and Chelsea Protasio (alternate)

Launch ramp closures

In order to reduce the number of people congregating in public areas due to the COVID-19 pandemic, the City of Monterey's boat launch ramps were closed to recreational boat traffic as of March 29. The closure is temporary and will be ended when the County of Monterey and California State Shelter in Place orders are

lifted. Boat launch ramps at Moss Landing, Santa Cruz, Pillar Pt., Oyster Pt., Port San Luis, and Morro Bay are closed as well. This closure will not apply to commercial fishing vessels with valid FG numbers.

Ocean salmon

The 2020 ocean abundance projection for Sacramento River fall Chinook (SRFC), a main salmon stock harvested in California waters, is estimated at 473,200 adult salmon, higher than the 2019 forecasts. The Klamath River fall Chinook (KRFC) abundance forecast of 186,600 adult salmon is lower than the 2019 forecast and will likely result in reduced fishing opportunity in the areas north of Pt. Arena.

California's recreational salmon fishery was scheduled to open in ocean waters on Saturday, April 4 in the Monterey management area, from Pigeon Point (37° 11' 00" N. latitude) south to the U.S./Mexico border. However, it will be delayed statewide through the month of April. The delay is the result of an in-season action taken by the National Marine Fisheries Service, on advice from the Pacific Fishery Management Council's salmon industry advisors and CDFW. The April delay is a response to physical distancing requirements and widespread closures of launch ramp facilities, charter boat operations, and restrictions to harbor and marina access due to the COVID-19 pandemic. Delaying the opener of the fishery will reduce impacts to stocks of concern and provide more fishing opportunity later in the summer months than would otherwise be possible. Recreational salmon season dates and regulations that will take effect on or after May 1 in all areas of California will be determined at the April 5-9 PFMC meeting, which will be held via webinar due to the COVID-19 pandemic. CDFW reminds Californians that everyone has the responsibility to flatten the COVID-19 curve by maintaining physical distance from other people of 6 feet or more when recreating in the outdoors, and by staying home if they are sick.

Dungeness crab

On March 25, 2020, the California Dungeness Crab Fishing Gear Working Group convened to review current data and conduct an updated risk assessment to evaluate the risk of marine life entanglement. The Working Group [recommendation](#) was unanimously low risk across three of the four risk factors. The risk factor of marine life concentration in the Northern Management Area was inferred low risk by majority recommendation and unknown by a minority recommendation. However, the entire Working Group agreed that no management action was necessary at this time.

Informed by this recommendation and after careful consideration of available data, the CDFW Director determined that no management action is necessary at this time; the season will remain open after April 1 for both the Northern and Central Management Areas. However, the Director and the Working Group encourage the fleet to continue to use [Best Practices](#) when fishing and to be ready to quickly respond to a management change at any time. Given historic migration patterns, significant numbers of whales typically return to the fishing grounds in April or May each year.

CDFW would also like to acknowledge the importance of commercial fishing to maintaining and securing our food supply. Commercial fishermen are reminded of the importance of maintaining a safe physical distance of 6 feet from others when outside of their home and to be vigilant about the role they must play to minimize the spread of COVID-19.

Coastal Pelagic Species

Northern anchovies mixed with some Pacific sardines made up the entirety of all landings occurring in late February and March in the Monterey Bay area. Captains reported anchovy schools were consistently swimming in deep water and in scattered schools through the night only to congregate in shallower waters around sunrise. In late March, there was no fishing activity due to lack of fish and poor weather conditions.

California Environmental Protection Agency

Karen Mogus (primary) and Julia Dyer (alternate)

Current Seat Activities

- On March 24th, the State Water Board released the draft staff report and proposed amendments to the Once Through Cooling Policy for a 60 day public comment period. The proposed amendments would extend the compliance deadlines for four power plants for up to three years to address concerns with electric grid reliability and per the recommendation of the Statewide Advisory Committee on Cooling Water Intake Structures (SACCWIS). The State Water Board will hold a board workshop on the

proposed amendments on April 21st (remotely) and a hearing and adoption meeting is planned for July 21st.

- Related Web Links to Member Report
https://www.waterboards.ca.gov/water_issues/programs/ocean/cwa316/policy.html

California Natural Resources Agency

Mark Gold (primary) and Tova Handelman (alternate)

Current Seat Activities

- The Ocean Protection Council is working remotely full time in response to COVID-19 concerns. Our top priorities are implementing our new Strategic Plan, funding new projects and research efforts, and keeping existing projects and research on track.
- At its February meeting, the Ocean Protection Council adopted a new 2020-2025 Strategic Plan to Protect California's Coast and Ocean. The Council also approved the disbursement of funds to remove urchins to support potential kelp forest recovery, reduce of the risk of whale and sea turtle entanglement in fishing gear, study marine protected areas through the California Collaborative Fisheries Research Program, and advance coastal ecosystem resiliency planning for the Lower Watsonville Slough. Links are listed below.

Related Web Links to Member Report

- Ocean Protection Council's 2020-2025 Strategic Plan to Protect California's Coast and Ocean:
http://www.opc.ca.gov/webmaster/ftp/pdf/agenda_items/20200226/OPC-2020-2025-Strategic-Plan-FINAL-20200228.pdf
- Projects that were funded at the Ocean Protection Council's February 26, 2020 meeting:
<http://www.opc.ca.gov/2020/01/ocean-protection-council-meeting-february-26-2020-sacramento/>

Harbors

John Haynes (Monterey Harbor)

The four Harbors within the MBNMS are under their respective San Mateo County, Santa Cruz County, and Monterey County Shelter in Place Orders as well as the California Governor's Executive Shelter Order. The biggest impact of the orders is the widespread closure of launch ramps throughout the region which were closed to prevent the large gathering of people that usually transpires during busy launching seasons. While some of the Harbor Offices also remain closed to non-essential services, most Harbor Operations are in full swing and are considered essential services. Safeguarding people, the environment and providing all services to the commercial fishing fleet as part of the vital food supply chain are all considered essential as well as providing safe refuge to transiting vessels.

Non-Voting Members

College

Jacob Winnikoff (primary) and Victoria Dickey (alternate)

We are using our Twitter page (@StudentsBay) to keep constituents up to date with news. This may now be a more effective communication channel than ever, given that all campuses are closed for the rest of the semester. We plan to be more active on the College Seat twitter in coming months, spreading positivity and building a following from which we can draw constituent feedback during shelter-in-place and beyond.

Related Web Links to Member Report

<https://twitter.com/StudentsBay>

ESNERR

Dan Brumbaugh (alternate)

Current Activities

- The Elkhorn Slough National Estuarine Research Reserve (ESNERR) closed to the public on March 16 because of the threat posed by the corona virus. Most Reserve employees are working from home, and

all in-person meetings have either been cancelled or rescheduled as virtual meetings. Staff who are still coming in are following social distancing and rigorous facilities and equipment cleansing/decontamination protocols.

- Research monitoring programs are continuing, including periodic changing of sondes (water quality sampling devices), bird nest box monitoring, native oyster propagation monitoring, amphibian breeding pond monitoring, and various revegetation experiments at Hester Marsh. The Stewardship team also continues to tend to native plants in the greenhouse, in the native plant seed farm on Elkhorn Slough Foundation land, and in Hester Marsh restoration areas (where they are also managing weeds).
- As soon as it became apparent that in-person school programs would be cancelled through March and April, the ESNERR Education team began the process of creating a catalogue of virtual opportunities for teachers, students, and parents. Within a week, a Watershed and Wetlands resource guide was posted on the website and a collection of DIY Science Crafts were uploaded. Within the next few weeks we were able to develop virtual fieldtrips with grade-level worksheets (using drone footage of our trails) and the Sea Otter Monitoring citizen science project was initiated (using the field cameras). The local school districts and many teachers have expressed their appreciation as we continue to reach 100s of students!
- ESNERR's Community Outreach Coordinator, Ariel Hunter, has also worked tirelessly to ensure that the many regular visitors to the Reserve and the public as a whole could continue enjoying the blessings of this place. In March, Ariel narrated and shared to social media a series of virtual trail walks. A live "Ask the Naturalist" opportunity aired the last Friday in March. Ariel also posted the DIY Science Crafts onto various social media.
- On February 25, ESNERR partnered with the California Coastal Resilience Network (currently managed by the California State Coastal Conservancy) to offer a live webinar by UCSC Doctoral Candidate Kat Beheshti on "Seagrass Restoration Triggers Rapid Recovery of Multiple Ecosystem Functions." A recording of the webinar is accessible at <https://youtu.be/1ZcBLJuEiFU>.
- On March 20, ESNERR partnered again with the California Coastal Resilience Network to offer a pre-recorded webinar by ESNERR Tidal Wetland Program Director Monique Fountain on "Science-based Salt Marsh Ecosystem Restoration in Elkhorn Slough." The recording of the webinar is accessible at <https://youtu.be/QxCFgq0XZ5I>.
- Phase I of the construction, including stage and benches, of a new outdoor amphitheater has been completed.

National Marine Fisheries Service

Steve Lindley (primary)

Scientists from the NMFS Santa Cruz Laboratory are working with colleagues across the nation to estimate the impact of the COVID-19 pandemic on commercial and recreational fisheries, in part to determine how \$300M in disaster relief will be distributed across the seafood industry. Early indications are the pandemic is taking a heavy economic toll on the industry locally and nationally due to collapsing seafood markets, damaged supply chains, and reduction in operations due to social distancing requirements that are infeasible to observe on vessels.

Working Group Updates

Conservation Working Group Update

Current CWG Activities

- The CWG has been working on a letter to urge schools to prohibit the use of balloons at school events like dances, proms, graduations, etc. Given the situation with the coronavirus causing schools to close there is no urgency to get the letters out, even though we researched mailing addresses and contacts so each letter could be personalized. When things return to some normalcy and schools open again, we will revisit this project.
- Similar, given the Covid situation we cancelled the April 9th meeting.
- Next meeting is scheduled for May 14th.

Assistance or Request of MBNMS Staff

Any ideas for how the CWG can continue to add value are welcome.

Research Activity Panel Working Group Update

RAP Meeting

The RAP cancelled its planned March 13 meeting due to the COVID-19 pandemic. The chair, vice-chair and MBNMS research staff held a conference call to plan RAP review of the Sanctuary Management Plan Update as part of the forthcoming public comment period.

RAP Reviews Draft Science Needs Assessment for Unmanned Aircraft Systems

Given the Advisory Council's interest in the use and management of drones, the RAP asked sanctuary research staff to draft a two-page summary of the information needed to characterize drone impacts on wildlife relative to species sensitivity, geography, drone size, flight altitude, and time of year. Several RAP members provided staff with written comments on what we believe will be a useful document for sanctuary research and management.

Journal Articles on Marine Heat Waves

Current and former RAP members have co-authored publications on the effect of marine heat waves in the initiation and rapid spread of sea star wasting disease. An overly simplistic summary of an article in the journal *Nature* is that the disease did not spread from one area to the next as would be expected of a contagion but occurred nearly simultaneously along the entire west coast of North America during a period of exceptionally high seawater temperatures. The loss of sea stars, particularly the sunflower star, is considered a major factor in the subsequent population explosion of sea urchins and the attendant demise of kelp forests.

A related piece in the prestigious journal *Science* characterized the capacity of kelp forests to produce goods and services as worth billions of dollars to humanity through kelp forests' role in supporting fisheries, coastal protection, nutrient cycling, carbon sequestration, and recreational opportunities. They describe kelp forests as "sentinel systems" providing early indications of another major impact of climate change.

References:

Aalto EA, Lafferty KD, Sokolow SH, Grewelle RE, Ben-Horin T, Boch CA, Raimondi PT, Bograd SJ, Hazen EL, Jacox MG, Micheli F, and De Leo GA. 2020. Models with environmental drivers offer a plausible mechanism for the rapid spread of infectious disease outbreaks in marine organisms. *Nature, Scientific Reports* 10:5975 | <https://doi.org/10.1038/s41598-020-62118-4>

Arafeh-Dalmau N, David S, Schoeman DS, Montaña-Moctezuma G, Micheli F, Rogers-Bennett L, Olguin-Jacobson C, Hugh P, Possingham HP. 2020. Marine heat waves threaten kelp forests. *Science* Vol 367, Issue 6478, 7 February 2020. sciencemag.org

Research Community Support to MBNMS Staff

The shores of Monterey Bay host more than 23 marine science institutions with a combined 2017 annual budget of \$347 million, making marine science one of the largest industries and employers in the area. This community is well networked, and MBNMS staff frequently ask for research information and advice to support management of sanctuary resources and outreach to the public.

Recently, Scott Kathey, MBNMS Federal Regulatory & Enforcement Coordinator, needed information about the potential toxicity and aquatic life impacts of occasional sailboat casualties that each deposit solid lead keels weighing 3,500 to 7,000 lbs within the sanctuary. He contacted Kenneth Coale, chemical oceanographer at the Moss Landing Marine Labs. Kenneth provided information about the lead-based anti-fouling bottom paints that have been most problematic for marine systems. He referred Scott to earlier work (by MLML and CDF&W) on impacts from lead slag dumped into Monterey Harbor at the end of the railroad line a few decades ago. Solid lead, either chipped from keels or in the form of lead shot or fishing weights, can become toxic if ingested by marine life and transformed into organic forms of lead. Kenneth provided references to publications and other information and offered to help organize sample collection around boat wrecks to help identify the chemical transformations that may lead to biological impacts.

This is one recent example of frequent interactions between MBNMS staff and other researchers in the area who provide authoritative information useful for prioritizing MBNMS management responses. A primary goal of the RAP is to enhance and facilitate this type of exchange.