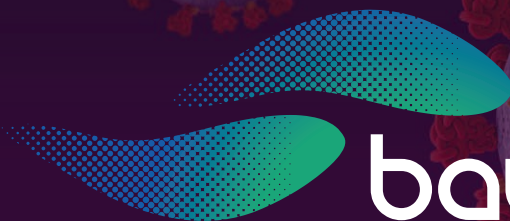
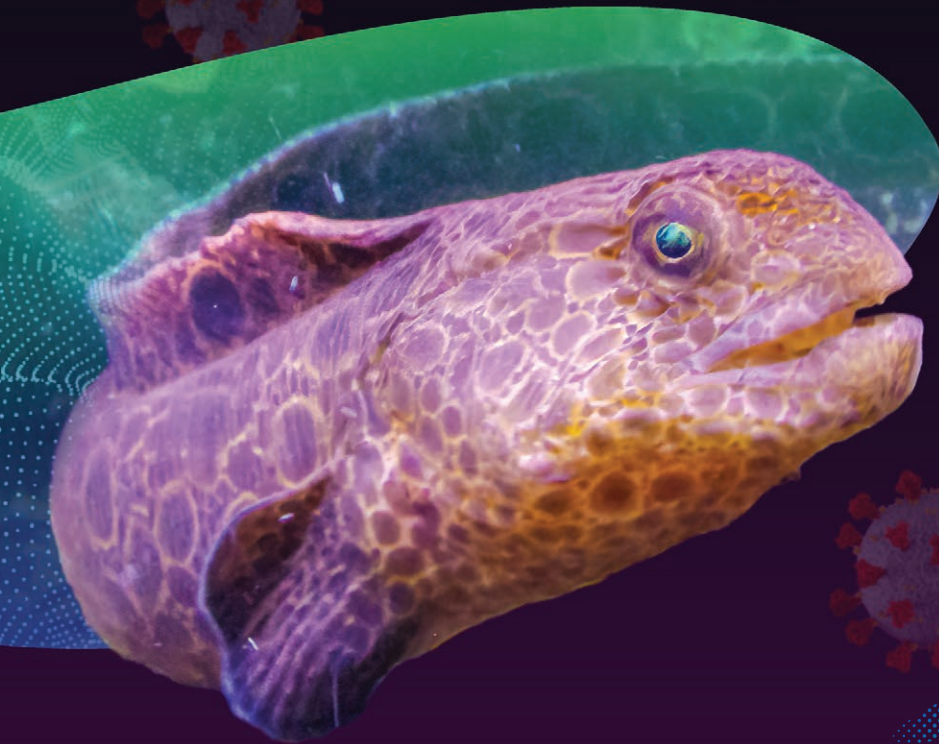


bay.org



bayecotarium
ANNUAL REPORT 2019-2020



ACKNOWLEDGMENTS

We are grateful to our Donors, Patrons, Sponsors and Members who have continued to support our mission through one of the most difficult years in the 25 year history of the Aquarium of the Bay. Our wonderful staff, many of whom faced furloughs due to the pandemic shelter-in-place Public Health Directives, for their dedication, care and hard-work in nurturing the 24,000 animals in our collections. Our Board of Directors have remained alert to the fiscal challenges and emergency measures that we proactively put in place. We are deeply indebted to Douglas Bystry and his team at CDFI for helping us with Emergency Loans when we most needed, and to PIER 39, under the leadership of Taylor Safford, for providing us with a 22 year lease extension in conjunction with the Port Commission of San Francisco. Our gratitude to PG&E for their proactive support deferring utility payments during the shelter-in-place.

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Content: Department Directors

Design/Layout: Studio Aqua





The background is a vertical gradient from a light teal at the top to a dark blue at the bottom. Two jellyfish are illustrated in a light blue, sketchy style. One jellyfish is in the upper left, and a larger one is in the lower right. The word "CONTENTS" is written in white, bold, sans-serif capital letters, centered over the larger jellyfish.

CONTENTS

06

BOARD OF
DIRECTORS

08

ADVISORS &
AMBASSADORS

10

EXECUTIVE
LEADERSHIP

12

MESSAGES

14

OVERVIEW

20

AQUARIUM
OF THE BAY

66

STUDIO AQUA

76

SEA LION CENTER

86

THE BAY INSTITUTE

90

BAY MODEL
ALLIANCE

92

BAY ACADEMY

100

2020 DONORS
AND MEMBERS

112

FINANCIAL
REPORT 2019

118

ECOCURRENT
NEWSLETTER

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National Geographic Explorer in Residence
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Exploration and Research



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Founding Director, Renewable and Appropriate
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State of California; Former Director, Coast &
Oceans Program, The Bay Institute



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Redlich Family Professor at Stanford University
Adjunct Professor of Military/Emergency
Medicine at the Uniformed
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DR. BRUCE CAHAN
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President & CEO, PIER 39



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Sudha Pennathur LP Collections



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 AQUARIUM
OF THE
BAY

Tala the Cape Porcupine from
Southern Africa, preps for her public
debut in the Farallon room at
Aquarium of the Bay

EXECUTIVE LEADERSHIP



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President & CEO



PAUL NAKAMOTO
Vice President
Guest Services



CATHY TOLENTINO
Director, Tourism Development &
Event Services



VICKI DE WITT
Executive Assistant



JAZ CARIOLA
Director, Guest Services



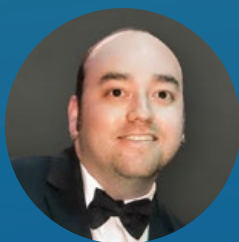
MELISSA SCHOUEST
Director, Animal Care



GARY BOBKER
Director, The Bay Institute



CHRIS LOW
Director, Life Support Systems
& Facilities



BRAXTON CAHILL
Controller



DAYNE BUDDO, PHD
Director, Bay Academy



MICHAEL SKINNER
Director, Institutional
Advancement

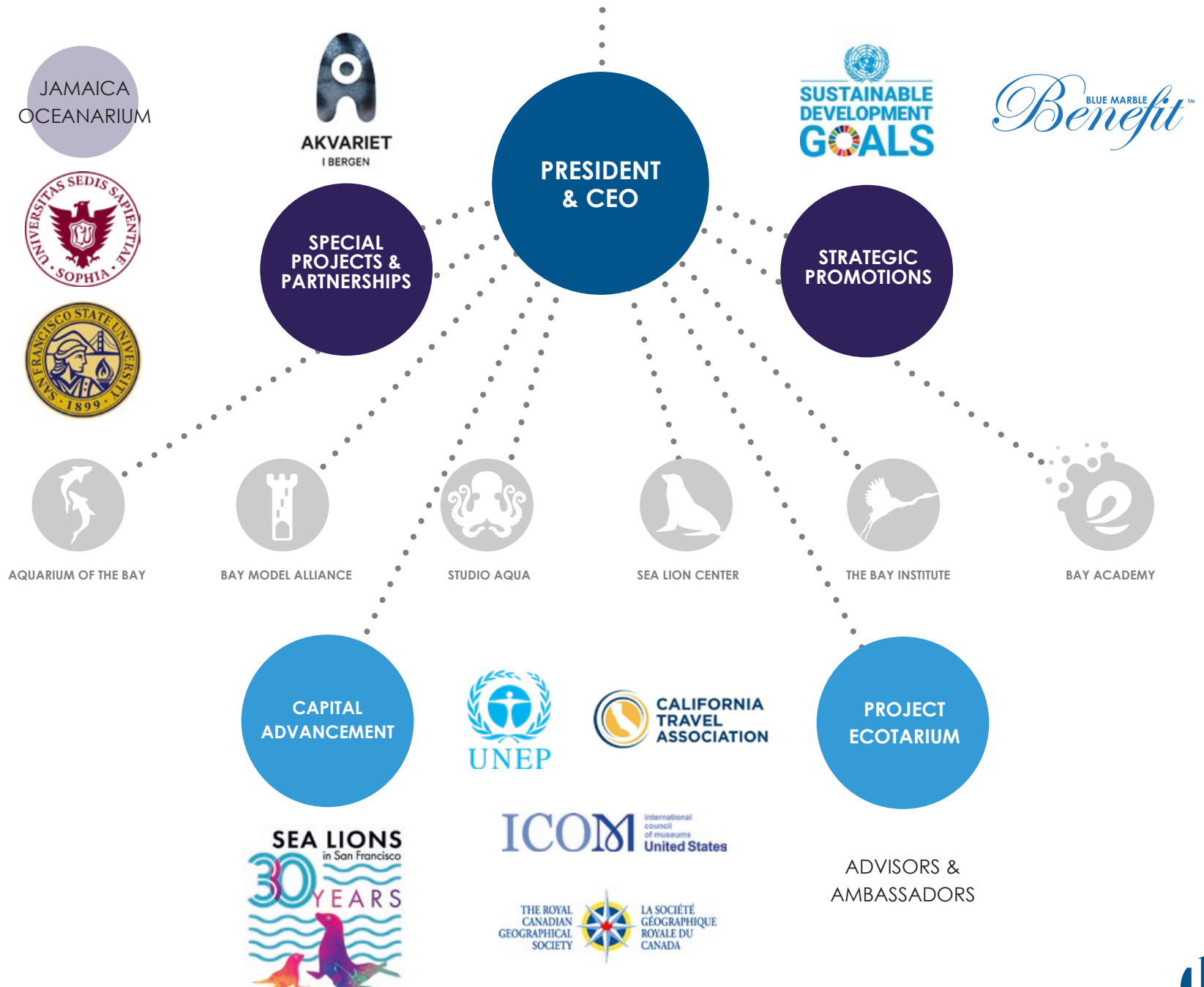


PATRICK DORAN
Associate Director, IT Services

COLLABORATIONS



BOARD OF DIRECTORS





MESSAGE FROM CHAIR, BOARD OF DIRECTORS

December 14, 2020

Dear Friends:

2020 has been a year of extraordinary challenges and extraordinary achievements for bay.org. Perhaps no industry was hit harder by the COVID-19 crisis than the zoo & aquarium community. We were forced to shutter our doors to visitors - and thus forgo our main source of revenue - but also to ensure that the myriad living creatures in our care remained healthy and happy at no insignificant cost.

During this time of great crisis, we were fortunate to have a staff in place that truly rose to the challenges. Under the steady guidance of bay.org's leadership team, the organization managed to accomplish feats that were almost impossible to imagine, including maintaining the health of 25,000 animals with a skeleton staff, refinancing significant financial obligations, and raising hundreds of thousands of dollars of donations with direct pleas and creative, entrepreneurial, endeavors such as our wildly successful aquarium mask campaign!

While we're not quite out of the water yet, we are counting our blessings that the steadfast commitment of our staff and executive team shepherded us this far. We have great hopes that 2021 will bring better fortune and - dare we say - a return to normalcy for our small but mighty nonprofit!

Sincerely,

Ben Bleiman

Chair, Board of Directors, BayEcotarium
San Francisco Entertainment Commissioner





MESSAGE FROM PRESIDENT & CEO

December 14, 2020

Dear Members, Patrons and Friends:

2020 has been a challenging year for us at so many levels. What began as a great start with the Mayor of San Francisco declaring January 16 as Sea Lions Day- following our historic launch of the largest public STEAM program in California that saw 30 painted Sea Lion Statues around the city, quickly evaporated into hesitant despair. The March 16 Shelter-in-Place Public Health Order due to the COVID-19 pandemic in San Francisco shut our operations triggering staff lay-offs and furloughs. What was initially anticipated as a temporary disruption, stretched a staggering 27 weeks, compounding fiscal losses upwards of \$8 million, even as we struggled to maintain critical staff to enable life support systems and animal care, at the core of a 24x7 operation.

Several fast moving developments and decisive action has stood us in good stead. First, we were able to work with financial institutions to secure an emergency loan. Second, we drastically reduced our workforce to bring down administrative overheads. Third, we were able to swiftly submit our applications for Federal assistance and secure it when we needed it the most. Fourth, launched some of the best designer facemasks honoring animals from our collections to tremendous public response and demand. Fifth, we shifted gears to develop virtual content, e-Learning modules, and offer virtual tours and lectures to audiences from around the world. Sixth, we accelerated our grant submittals and extended our expertise to develop Aquarium Functional and Master Plans for national institutions in Jamaica and Norway. Seventh, we focused on internal repairs, re-vamping our research vessel, animal care and deep cleaning the aquarium in prep for the upcoming 25th Anniversary celebrations. Next, we re-structured our debt and negotiated a historic 22 year lease extension. Ninth, we released the much anticipated Bay Institute Water Report for 2018-19. Tenth, for the first time, we launched Dive Certification Programs along with underwater photography and laid the groundwork for BayEcotarium Expeditions field research cohorts with the first mission scheduled in March 2021 for Hawaii, followed by Costa Rica. Finally, we published a seminal book "The Corona Conundrum" bringing attention to the problems and exploring potential solutions, as we all look to the future of tourism, destination dynamics and economic drivers of 2021.

Your continued support has been a great source of strength for all of us.

We look forward to a wonderful and promising 2021.

Stay tuned. Stay Connected.

George Jacob FRCGS
President & CEO, BayEcotarium

Board of Directors, ICOM-US
Board of Directors, Bay Area Council
Board of Directors, Cal-Travel
Fellow, Royal Canadian Geographical Society

Chief Advisor, UN Environment (Caribbean) Climate Museum Initiatives





EXECUTIVE SUMMARY

What began as an up-beat year with the launch of California's largest STEAM education public endeavor with 30 painted sea lion statues serving as environmental ambassadors on the Embarcadero on January 16, 2020, quickly turned into one of the most challenging year in the history of the Aquarium of the Bay.

As San Francisco went into Shelter-in-Place following Public Health Orders owing to COVID-19 pandemic, PIER 39 closed its doors to public, as with all attractions and businesses across town and counties. As the shut-down continued, many businesses teetered on the verge of bankruptcy while others accelerated their desperate quest for donors, hand-outs, loans, grants and underwriters.

The Aquarium was left with little choice but to initiate lay-offs and furloughs, retaining core staff to work on Life Support Systems, Animal Care, Administrative and Financial services, even as it prepared for federal SBA loans and PPP support as interim relief. While we were successful in getting the first and second emergency loans, we were also successful in securing an Emergency Loan from CDFI avoiding a major crises with 24,000 live animals in our care and collections. Simultaneous efforts to lobby with various professional associations including AZA, CAZA, Cal-Travel, SF Chamber, SF Travel, and others with both City Hall and the Governor's office of GoBiz continued resulting in issuance of re-opening Guidelines in May/June. It was followed up with swift re-opening plans, videos, instructions and on-site measures at the aquarium with enhanced circulation and sanitization protocols in preparation of a short-lived re-opening go-ahead that barely lasted 24 hours. While our comprehensive plans were ahead of many other institutions, we were approached by other institutions and attractions to share our protocols and plans to help them with theirs. An important development that ensued was the prompt support provided by the Association of Zoos & Aquarium's President Dan Ashe, who issued us a letter at our request, urging Governor

Newsom to recognize Aquariums as 'Essential Service' and de-link them from museums that do not have live collections.

Internally, we moved fast on five fronts. We designed and created facemasks quickly sourcing them and launching them successfully to high local demand that continues to this day. It was challenging given the deluge of face-mask demands that flooded all manufacturers around the world. Next, we shifted gears to offer virtual tours, e-Learning modules, podcasts, live-cams and tapped into all television and radio networks including NBC, CBS, ABC, KRON, KCBS, with our appeal for help. As content creation gained center stage and we entered into several collaborative Memorandums of Understanding with Sophia University in Japan, Cocos Islands and other research institutions. We authored and released a seminal book, The Corona Conundrum, outlining the opportunities for a generational shift in augmented learning in Aquariums, science centers and museums of the future. Following that, as the lock-down stretched to September, we tapped into our internal expertise and consulting capabilities to lend our expertise to two prestigious projects internationally. First, we were awarded the contract to generate a Functional Brief for a \$3 billion NOK National Aquarium rejuvenation plan in the Ocean City of Bergen in Norway. Second, we are awarded a Master Planning contract to develop the National Oceanarium in Jamaica. Finally, we launched BayEcotarium Expeditions- a series of field-based research and training activities with cohort-driven Dive Certifications and Research Field-trips to Costa Rica. These steps not only add to sources of revenue, but also strengthen the institution as a whole and tests its ability to leverage its resources toward maximum impact, in the time of unprecedented existential crises.

With a September 21, re-opening announcement there was a short-lived glimmer of hope at 25% cap that barely lasted 9 weeks, before Corona called for yet another shut-down as the City plunged into the 'Purple' color coded state of emergency threshold with hospitalization increases.

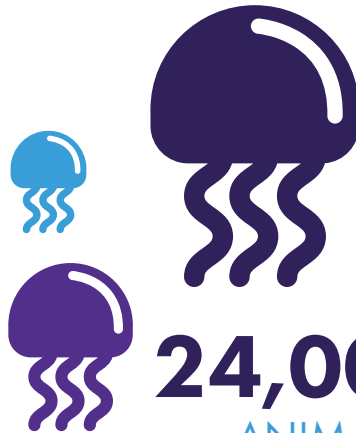
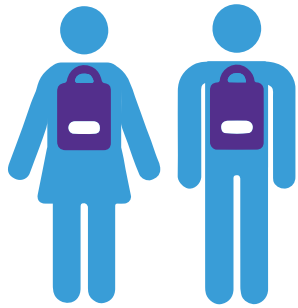


**BAYECOTARIUM IS THE LARGEST
NON-PROFIT WATERSHED
CONSERVATION GROUP IN THE
SAN FRANCISCO BAY AREA
WITH A MISSION TO ENABLE
CONVERSATIONS ON CLIMATE
RESILIENCE AND OCEAN
CONSERVATION GLOBALLY,
INSPIRING ACTIONABLE
ENVIRONMENTAL STEWARDSHIP
LOCALLY, TO PROTECT AND
PRESERVE ITS ECOSYSTEMS FROM
SIERRA TO THE SEA™ AND BEYOND.**

40 YEARS OF ACHIEVEMENTS

1.6 MILLION
CHILDREN

FREE STEAM
EDUCATION PROGRAM



24,000+
ANIMALS

188

SPECIES IN OUR CARE



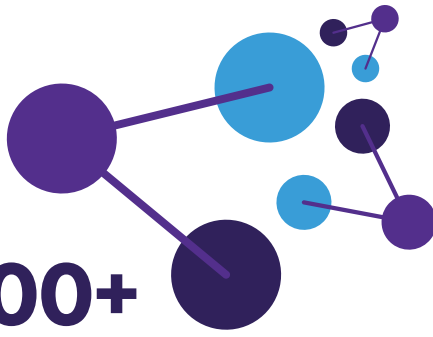
12.9 MILLION

VISITORS



10,000 LBS.

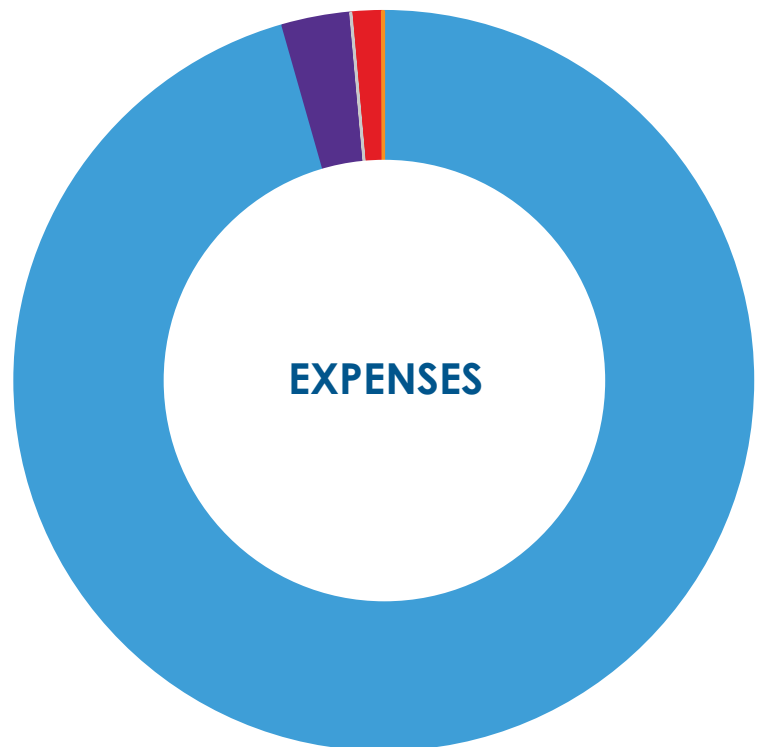
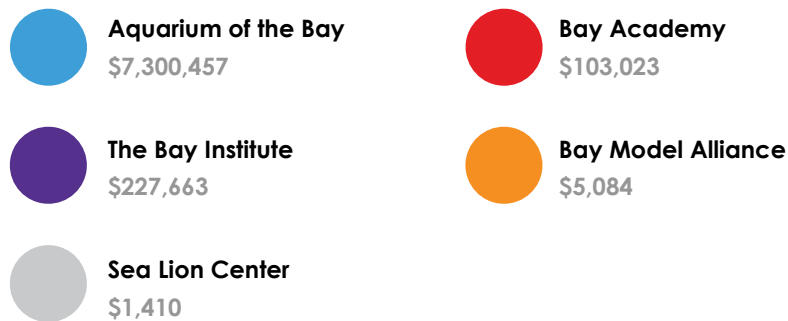
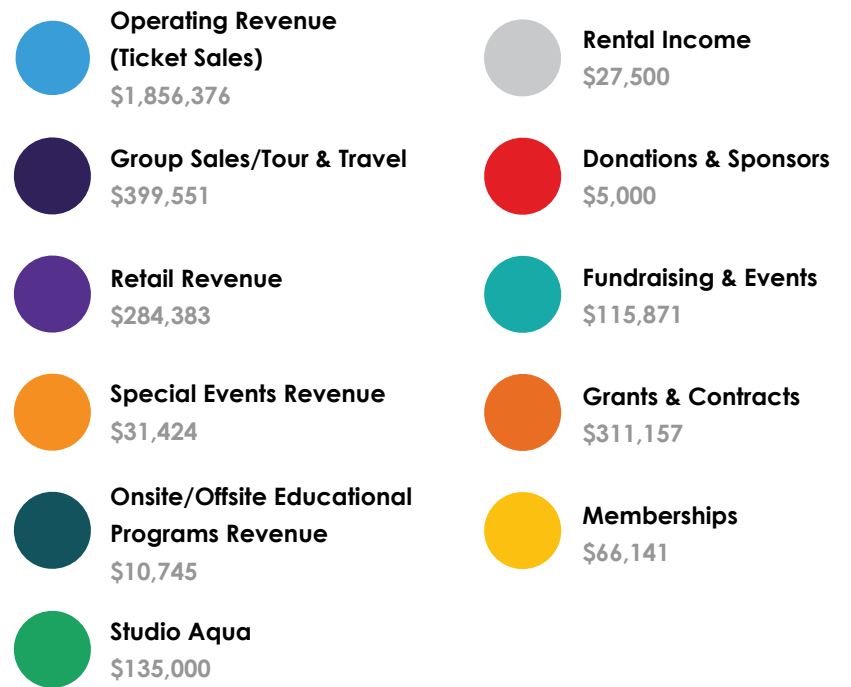
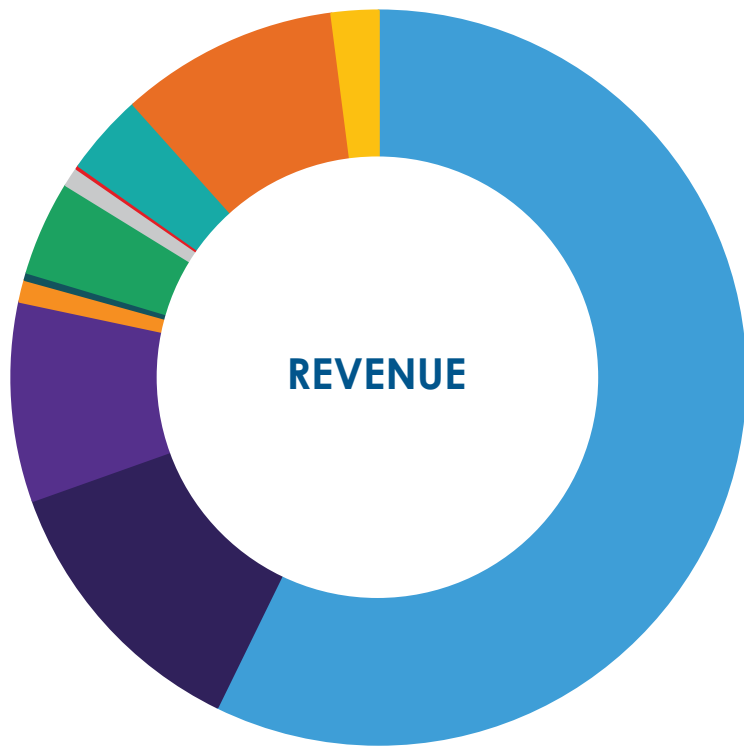
TRASH REMOVED FROM
BAY SHORELINE



65,000+

NETWORK FOLLOWERS





*Financial numbers include estimates for Q4 2020



INTERNATIONAL OUTREACH

SEOUL

TOKYO





AQUARIUM OF THE BAY



1.

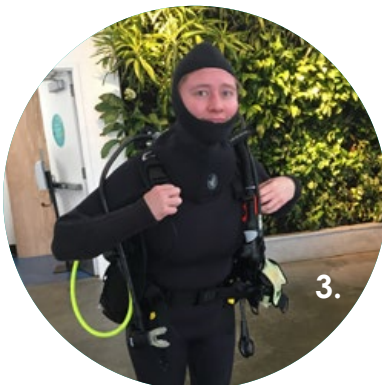
ANIMAL CARE

In 2020, the Animal Care department continued to maintain the high standards of care for our living collection, and the exhibits showcasing them, during an unprecedented global pandemic. The department swiftly enacted contingency plans, seized opportunities to execute many projects inside the aquarium, and began to rebuild the volunteer program. The department continues to work hard to provide excellent care for our animals while assisting the organization operationally as the institution navigates the reopening process.



2.

When the shelter-in-place order was instituted in March, our department split up into non-overlapping teams to maintain operational needs in case the virus infected the staff, working hard to maintain care under trying conditions, both physically and mentally. Those plans meant the department operated at 50% strength for over 4 months. During the shutdown our team utilized the opportunities given to us to accomplish several projects, including draining and deep-cleaning several exhibits, re-configuring back of house and storage areas, and many other projects that would have been more difficult while open.



3.

Additionally, the department continued efforts to encourage and allow animals in our care to reproduce in our care. Another generation of several hundred Pacific spiny lumpsuckers was raised both for

display here and to assist other institutions in showcasing this unique and engaging species. These breeding efforts enable us and other institutions to showcase and inspire conservation for marine life while lowering the impact upon the wild populations. Several additional generations of jellies have been successfully raised for display as well.

The Animal care team has successfully re-started the volunteer program this fall, onboarding 15-20 volunteers to date, allowing the department to once again utilize volunteers to assist our team in caring for the animals. The volunteers themselves have been eager to return, learning new skills and assisting our department in caring for the animals. The pandemic has resulted in a wide array of necessary changes to the program, precipitating new protocols and changes to make this a reality. In addition, every volunteer diver had to be re-trained and re-certified by our Dive Safety Officer after so many months away from the aquarium.

Lastly, the living collection continues to thrive under our care. The AC team added some Red octopus to the collection once more (*Octopus rubescens*) as well as accepting juvenile leopard sharks from southern California that needed a home. 3 bat rays were born here in 2020, and while not on display yet, are doing well and hope to be on display in the new year. Overall, the animal care department continues to persevere and deliver a high standard of care in a year no one planned for.

1. Andrew performing various feedings
2. View inside one of Aquarium of the Bay's tunnels
3. Jill Berryman gearing up for the otter enclosure



Staff social distancing during the COVID-19 Pandemic, 2020



1.

Highlights

- The Animal Care team has persevered through unprecedented times, delivering uninterrupted care and support for our living collection through a global pandemic.
- This year the aquarium successfully raised over 200 Pacific spiny lump suckers and have begun sending them to other institutions, as well as ensuring we have another generation to display and engage with guests, as well as new generations of jellies.
- The broadnose sevengill research project continues, capturing and tagging and sampling several dozen sharks while performing husbandry operations in the bay this summer. Additionally, staff successfully recaptured several individuals tagged in 2019, an exciting milestone.
- Tala the porcupine has begun engaging with the guests during an animal ambassador encounter where she greets guests and helps the animal care team convey important topics about human impact and climate change. Digital versions of her presentation, and a new informational nook are now in development, and hope to be presented to the public soon.
- Lastly, the Animal Care team has achieved several smaller animal related milestones, such as moving one of our 6 juvenile leopard sharks onto display, acquiring new smaller but interesting animals and species to display, and more.





2.

1. Divers in an Aquarium of the Bay tunnel
2. Tala the porcupine explores the Aquarium and encounters one of the River otters for the first time.
3. Mike McGill poses with a Soupfin shark, caught while sevengill fishing, before safely returning it to the bay.



3.



2900SXL

1.

ASSOCIATION
OF ZOOS &
AQUARIUMS



Smithsonian Affiliate



AQUARIUM OF THE BAY
SAN FRANCISCO CA



2.



4.



3.

1. Animal care staff train in donning immersion suits, necessary safety training delayed by shelter-in-place that the team is catching up on.
2. Meghan Holst feeding baby spiny lumpsuckers
3. One of two Red Octopus now in holding at the Aquarium.
4. Pacific spiny lumpsuckers, moments after hatching, are collected and safely moved.

The R/V Mike Reigle, hauled out for hull cleaning and repainting, ahead of the summer collecting season.





Tala the Porcupine with staff member during a presentation



AQUARIUM OF THE BAY

GUEST SERVICES & RETAIL



Aquarium of the Bay's Guest Services Team, headed by Director Jazmin Carola, started 2020 off strong with the Sea Lions in San Francisco celebration that brought us guests to see the sea lion statues and helped aquarium ticket sales in January, February and the beginning of March. Our Sea Lions in San Francisco merchandise helped boost retail sales in the first quarter as well.

During the twenty-seven week shut down, most of our Guest Services Staff were furloughed but our core team was able to concentrate on our Gateway Tickets Point of Sales System, strengthening our online sales via our Gateway Connect portal for tour operators and online travel agents and new timed ticketing, preparing for the aquariums reopening.

Retail created and began to sell new Aquarium of the Bay Face Masks during the early days of the pandemic, as well as revamped the EcoStore, our online web store, with new merchandise, including Sea Lions in San Francisco merchandise and new product bundles. Once PIER 39 was able to reopen, our new Retail Executive, Jaclyn Wasmann, reopened our PIER 39 gift store open during our aquarium closure. New displays with mannequins and the product ordered by our Retail Buyer, Kiran Bedi, sold well during the aquarium closure. Record online store sales were recorded during our twenty-

seven week closure, creating a growing revenue stream for the aquarium during the closure.

Once the aquarium was permitted to reopen in September, our Guest Services and Retail Staff were brought back with new safety protocols and guest procedures in place to help reopen the aquarium safely for our staff and our guests. Timed ticketing was implemented to help control the flow of guests into the aquarium to comply with San Francisco Department of Public Health capacity regulations.

Aquarium guest evaluations continue to give us high marks on our guest experience and customer service since our reopening.



1. Aquarium of the Bay's gift store on PIER 39 reopened with the help of our new Retail Executive, Jaclyn Wasmann
2. Moray eel at Aquarium of the Bay
3. Dianna Cohen (Jackson Brown) holding a new sea lion bottle
4. Our online web store, EcoStore, was refreshed with additional products and bundles during the pandemic.
5. Refreshed display with new sea lion products at our gift store on PIER 39
6. Sea lion water bottles



Face Mask – Tentacles

\$10.99



BUNDLE

Bundle | Shirt, Magnet, Tumbler, Mug

~~\$66.96~~ \$50.00



BUNDLE

Bundle | T-Shirt and Bottle Opener/Coaster

~~\$29.98~~ \$20.00



BUNDLE

Bundle | Tumbler, Magnet Postcard, Sea Lion Shirt

~~\$50.97~~ \$30.00



Aquarium H2GO Silo Tumbler

\$18.99



Soundtrack from Aquarium of the Bay



Aquarium of the Bay – Etched Shark Mug

~~\$9.99~~ \$9.99



Museum Futures: Gen Alpha (Hardcover)

\$45.99

Showing 1–16 of 40 results





Aquarium of the Bay gift store at PIER 39





AQUARIUM OF THE BAY



SALES & EVENTS

Highlights

2020 should have been a great year for Sales & Events if not for COVID-19.

Hosted a workshop for Bay Area Corporate Meeting Planners the first week of March:

- Private tour of the aquarium, special presentation on venue rentals and what we do as a nonprofit
- Very positive feedback from meeting planners who attended.

Hosted a Virtual Live interactive familiarization event of the Aquarium for GROUPON staff (2,000 employees and their families) via Zoom in July.

- Feedback from staff was very positive.
- Looking forward to new programs for virtual events for them to promote

Have had success with our sales considering the challenges we have had with COVID-19

- Continued to stay in communication with our clients on a weekly basis (March through current), keeping them up to date with the aquarium and our animals through social media/Facebook live programs

- Since we have been open even at 25% capacity limitations, we have proven through our department revenue that constant engagement with our clients allowed them to sell our tickets once our doors were opened

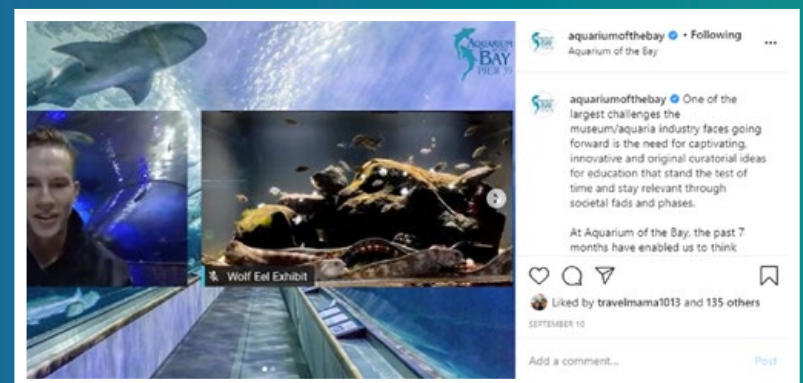
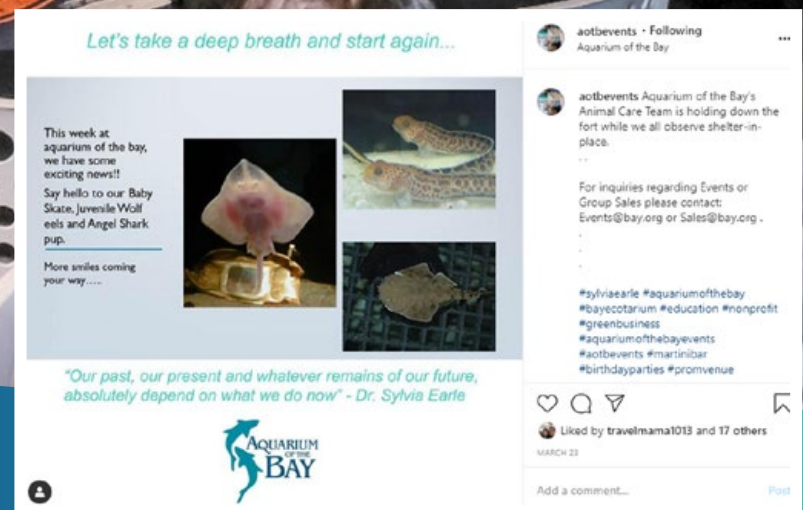
Challenges

- Increase of inquiries and confirmations for Private event bookings lost.
- Some Tour Operators out of business
- Some of our Catering companies out of business
- Hotels continue to be closed or at 25% capacity
- Attractions closed or at 25% capacity
- Corporate companies are offering virtual or no events for 2020
- Field trips are minimal
- Group trips are minimal





1. Farallon room event space setup for SF Planner Master Class
2. Guests from SF Planner Master Class enjoy experiencing the aquarium tunnels during a tour
3. Cathy Tolentino, Director of Sales and Events, and Neha Prakash, help attend a bar during an event in the aquarium
4. George Jacob, President & CEO of bay.org, addressing the Bay Area meeting planners at the SF Planner Master Class.
5. Updates on social media about our animals to our partners & guests
6. Live interactive tour through Facebook & Instagram live








As part of Black History Month, bay.org Board Member Anelique Tompkins worked with Aquarium staff to create Sankofa Days, a celebration of Black History Month. Families from the Bayview Hunters Point Community and communities throughout San Francisco participated in music, arts and culture.





Virtual Behind-
the-Scenes Tour

VIRTUAL TOURS

Due to the pandemic & shelter-in-place, we know that in person field trips are a vital challenge. That's why our wildlife experts would like to take your team on an interactive tour of Aquarium of the Bay in San Francisco. With over 20,000 animals to show you, and scientists on staff to answer your questions, plan a field trip full of curiosity and wonder!

Aquarium of the Bay Virtual Experiences:

Amazing Adaptions: The Survival Strategies of Sharks and Fish

Explore the multi-colored rockfish of our nearshore kelp forest, go behind the scenes to learn about the Pacific spiny lumpsucker babies we raise at the aquarium, and journey beneath the waves in our Sharks of Alcatraz tunnel.

From Otters to Octopuses: Enriching Animals' Lives

Like humans, some animals are so smart they need puzzles and games to stay healthy and happy. Learn about our smartest species and go behind the scenes to see how we keep them entertained!

How InterestING: Jellies, Anemones, and Corals

How do jellies? Why are anemones so slimy? Is it true that some corals can live hundreds of years? Go behind the scenes to learn about the lifecycle of the jellies, corals, and anemones we raise on-site.

Cold-Blooded Creatures: Reptiles and Amphibians

Meet some of the coolest animals on land. We would like to introduce you to our blue-tongue skink, King snake, and Red-eared Slider turtle up close. Then, we'll explore the amphibians you might find in the forests of California. They have an important climate change message to share with you!



Behind-the-Scenes Tour

Go beyond the "Staff Only" signs and see what it takes to run an Aquarium. Explore the life sustaining pumps and systems that keep over 700,000 gallons of water filtering and moving through our tanks every day. Find out how many freezers it takes to feed over 10,000 marine animals per week, and how we provide healthcare for our animals. Along the way, learn about the conservation efforts and shark research at the core of our institution.

BayEcotarium Edu-Ventures

- This is a Live Interactive Exploration Experience in the natural environment for a global audience.
- Participants will explore a habitat with a Wildlife Expert and content will be configured based on the audience by our Education Specialists
- There will be different environments: underwater, wetlands and forests, and each adventure will immerse the audience into that environment.

- Guests will explore underwater peering through the lens of an Underwater Remotely Operated Vehicle (ROV) while it explores
- Aerial drones and surface cameras will be used to capture footage and broadcasting live from the field.
- Guests will be able to ask questions real-time and get responses as they explore.
- The unpredictable features of the wild will give the audience a unique experience

Corporate Logos from Virtual Tours

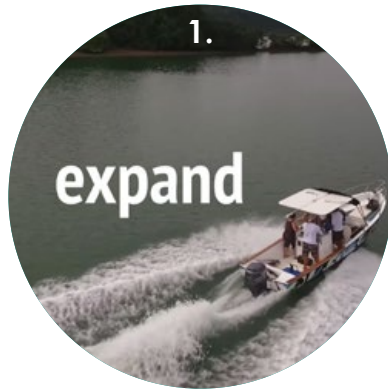


MAZE THERAPEUTICS





AQUARIUM OF THE BAY



NEW FOR 2021: HANDS-ON MARINE CONSERVATION

BayEcotarium Expeditions

The newest programs to be launched in 2021 by Bay Academy will bring you up-close and personal to the hands-on conservation work for the majestic marine life in four various areas of the globe.

Participants will have the chance to tag sharks, conduct underwater marine assessments, learn about marine protected areas, participate in coral restoration, observe strategies for adaptation to climate change and engage in a truly once-in-a-lifetime experience based around marine conservation.

Costa Rica: June-July 2021

3 Expeditions:

- Golfo de Papagayo: June 13-22
- Cocos Island: June 26-July 6
- Golfo Dulce: July 8-18

Focus: Shark research and conservation, hands-on training and experience in shark tagging and underwater shark visual monitoring

Hawaii: March, 2021

Focus: Marine Protected Areas, coral restoration

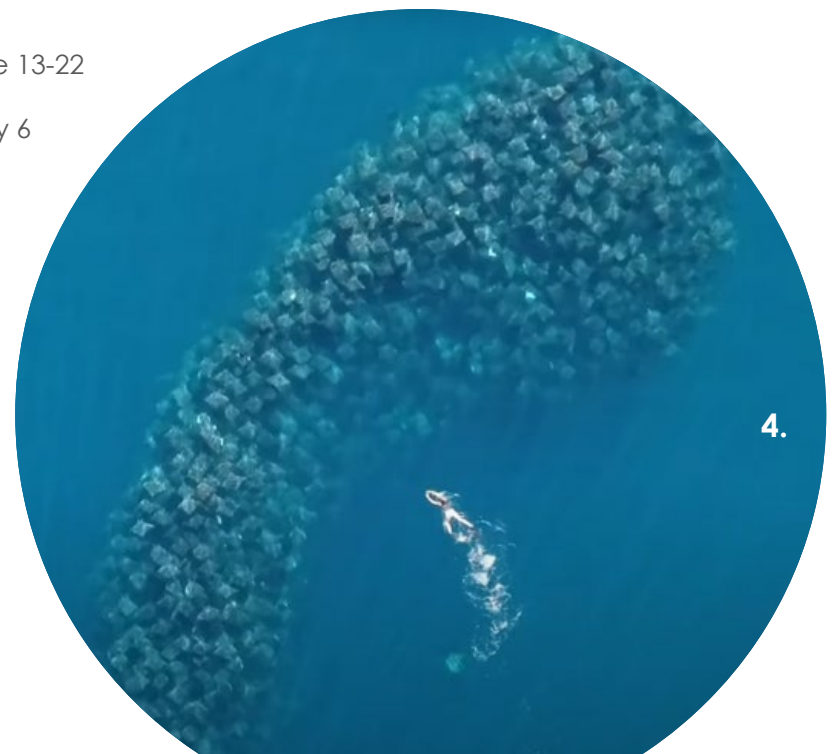
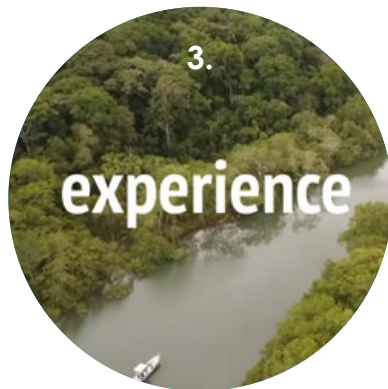
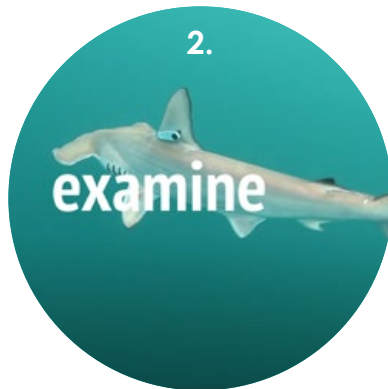
Cuba: September, 2021

Marine Protected Areas, adaptation to climate change

Mexico: November, 2021

Focus: Marine Protected areas, whale sharks, bull sharks

1-6. BayEcotarium Expeditions, Costa Rica



bayecotarium
expeditions
Costa Rica



5.



6.

UNLOCKING THE LOCKDOWN - VIRTUALLY!



ONLINE
CONCERT
FOR A HEALTHY PLANET

DATE
22 APRIL **EARTH**
DAY
50 YEARS: 1970-2020

BAYECOTARIUM PARTNER
AQUARIUM OF THE BAY
SAN FRANCISCO

TIMES (PST)
World Premiere: 7:30AM & 5:00PM

STREAM ONLINE:
aquariumofthebay.org
bayecotarium.org

bayecotarium

GRAMMY® WINNER
RICKY KEJ

LIVE AT **One Page Spotlight**

FEATURING
5 GRAMMY® WINNERS
AND OVER **40** MUSICIANS
FROM **6** COUNTRIES

GOODWILL PARTNERS



EROS NOW

CIT STREAMING PARTNER

isha

CAUSE PARTNER

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BIG-SCREEN PARTNER

Justdial

India's No. 1 local search engine
LIVE STREAMING PARTNER

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MANNY'S
SF + CA

bayecotarium

Manny's
Super Civic Cyber
Conversations

GEORGE JACOB
President & CEO, Aquarium of the Bay / BayEcotarium

THE FUTURE OF MUSEUMS AND AQUARIUMS



TUNE IN FRI 4/17 AT 5 PM REGISTER @ WELCOMETOMANNYS.COM



Earth Day
Plant a Tree...
Sequester Carbon.

50 YEARS

CLIMATE CHANGE

AQUARIUM OF THE BAY

bayecotarium

Smithsonian Affiliate

SAN FRANCISCO GREEN BUSINESS

ASSOCIATION OF ZOOS & AQUARIUMS

FREE VIRTUAL EVENT
DEC. 11TH -  +  + 
www.facebook.com/aquariumofthebay



SPACE REFRACTIONS

KIMIK Live Concert from the Aquarium of the Bay
Donate @ www.aquariumofthebayfund.org
10 a.m. PST // 7 p.m. CET

Smithsonian Affiliate

AQUARIUM OF THE BAY

ASSOCIATION OF ZOOS & AQUARIUMS

VIRTUAL SHABBAT

FRIDAY, JULY 31 2020
6:00pm to 7:30pm

MUSIC BY
Mikey Pauker
Hughie Stone Fish
Kosha Dillz

AQUARIUM OF THE BAY & VAJUE CULTURE

RSVP TODAY (FREE)

Smithsonian Affiliate

AQUARIUM OF THE BAY

ASSOCIATION OF ZOOS & AQUARIUMS



TROUT

in the

CLASSROOM



1.

EDUCATION

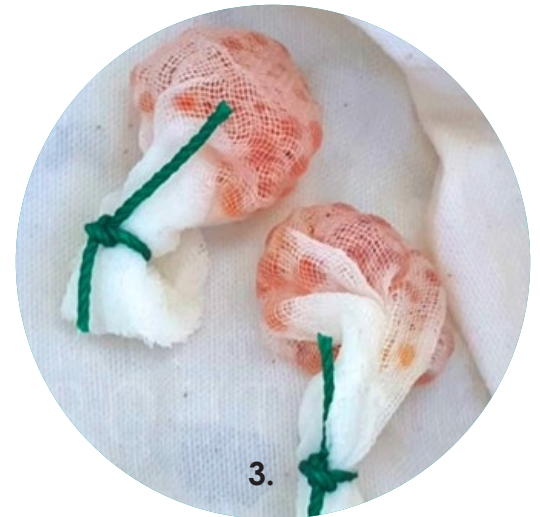
The Education Department and associated programs were significantly affected with the Shelter-in-Place Order from COVID-19 in March. The department also came under the direct supervision of the Bay Academy on March 16, being led by newly installed Director, Dr. Dayne Buddo who was given the responsibility of navigating the department through the uncertain times ahead. As one of the public-facing arms, a very difficult decision was made to furlough all staff of the department and subsequently, most were permanently separated as the shutdown progressed from weeks into months.

The mode of delivery and engagement with our schools was forced to rapidly evolve into a virtual space, as schools closed and switched to online platforms. Throughout the shutdown, minimal staff was brought back periodically, to keep our engagement with our community that we serve. Despite these unprecedented challenges, the Education Department was able to make a meaningful contribution and have positive impact in climate and ocean literacy.

Trout in the Classroom

We had 9 schools and teachers that took part in the 2020 Trout in the Classroom Program. They had the eggs delivered in late February and they hatched very soon afterwards. While the Education Team normally accompanies the classes to release their fish, this year was much different. Once we got the word that schools would be closed, the team rapidly implemented a plan to collect the fish from the classrooms, and release these into Lake Merced prior to schools shutting down. We created a video of the release, and shared this with the schools, as well as with the California Department of Fish and Wildlife that oversees this program.

1. Trout in the Classroom education program, concluded with a video of trout being released
2. Steelhead Trout
3. Trout Eggs delivered to Classrooms in February 2020
4. Trout being released into Lake Merced by our Education Specialist, Lindsay Shorter





AQUARIUM OF THE BAY



Virtual Aquarium Visits

Within 2 weeks of the Shelter-in-Place Order, we launched our Schools' Virtual Tours in order to bridge the gap for those students who would have otherwise visited the aquarium for the field trip. With support from the Animal Care Team, the Education Department engaged approximately 1,500 students across the Bay Area, and even overseas in the Caribbean between April and May, 2020. This program subsequently developed further and is now a permanent feature of the program portfolio of the department, showcasing 5 different tours for schools, corporate groups and the general public, and is offered at least twice per week, serving over 5,000 persons.



Science Saturdays in the Discovery Zone

Upon the reopening of the aquarium on September 21, 2020, the Education Department designed and implemented a special Saturday Oceans Workshop. This provided an outdoor engagement with an Education Specialist with various scientific techniques of water sampling, plankton analysis (food webs), animal adaptations among other concepts.



High School Internship Program

The Education Department received funding from the San Francisco Public Utilities Commission (SFPUC) to implement an internship program for select high schools. We recruited 5 students and implemented the internship program in a virtual mode over the Summer. The program covered tasks under the aquarium program such as social media content, and career-building activities such as resume writing, interview techniques and presentation skills. This internship program was done in tandem with 2 Interns from the Mayor's Office. The program culminated in a special virtual session where the interns presented on their climate project, attended by George Jacob who gave the students some motivational words and inspiration for their future ahead.

1. Staff member streaming during Virtual Aquarium Visits
2. Virtual Aquarium Visits promotional graphic
3. Science Saturdays in the Discovery Zone
4. Virtual Aquarium Visits promotional graphic





LEFT:
Surfrider in the
Carter White
House legendary
Rob Caughlan
better known as
"Birdlegs" weighs
in his support for
BayEcotarium

RIGHT:
Napa staff picnic



VJB CELLARS



BARREL ROOM





AQUARIUM OF THE BAY



Smithsonian Earth Optimism Project

The Aquarium of the Bay, a Smithsonian Affiliate received a grant from the Smithsonian Institution to be one of nine affiliates to be a part of this national competition. This involves the recruitment and mentorship of 10 high school students from the Bay Area to each produce a 2-minute video on an environmental issue in their community, linking it with the COVID-19 pandemic. In some cases, this also meant a positive impact on the environment such as improvement in air quality due to a reduction in traffic. The Education staff designs and delivers content presentations and mentors the students in producing their videos. Each video would be entered in the video contest in mid-January, 2021.



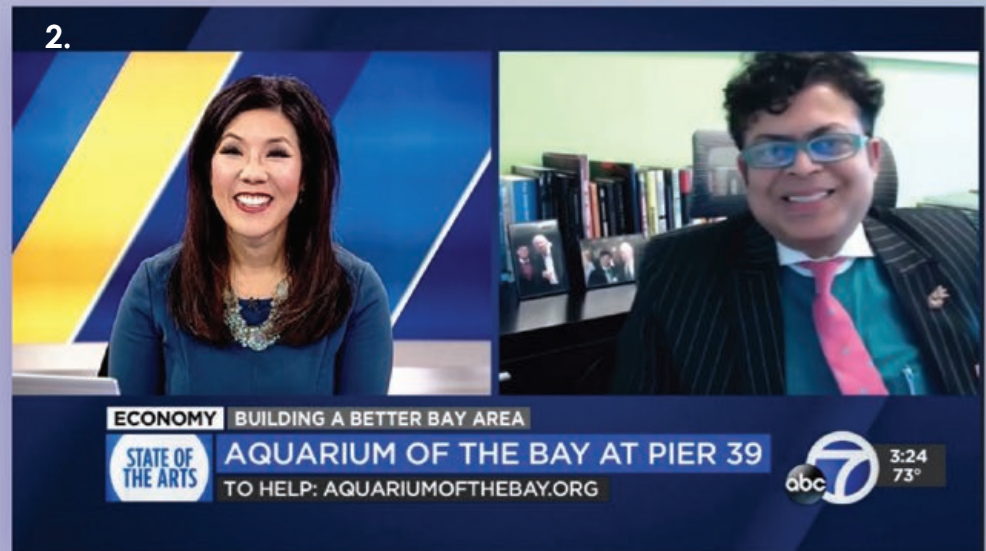
Sea Lions 30th Anniversary

We celebrated the 30th Anniversary of the arrival of the Sea Lions on January 16, 2020. One of the major activities was an event showcasing the 30 Sea Lion statues painted by local artists and positioned across the city. A special declaration was made by Mayor London Breed of the day as Sea Lions Day at the event. The Education Department supported this event with walking tours for the public to learn more about the sea lions on K-dock and presentations in the Sea Lion Center.



1. Alice Pederkoff showing participants locomotion and adaptation of turtles
2. Aquarium of the Bay tunnel
3. Mayra Rivas teaching about plankton sampling
4. Sea Lions in San Francisco statues at PIER 39 during the 30th anniversary week





1. Anchor Dan Ashley from ABC 7 visiting Aquarium of the Bay's Corporate HQ with the BayEctorium scale model
2. ABC 7 broadcast on December 7, interviewing George Jacob about Aquarium of the Bay's alternative online experiences after a second closure during the pandemic in 2020.
3. Interview with George Jacob outside Aquarium of the Bay



3.





AQUARIUM OF THE BAY



1.

FACILITIES AND LIFE SUPPORT SYSTEMS DEPARTMENT

2020 has presented significant challenges for the Fac/LSS Department with major unplanned repairs and reduced staffing.

As is to be expected the original operating equipment is now coming to the end of its life cycle (25+ years) and we are seeing that in major repairs. The department staff is doing a great job maintaining equipment, unfortunately there is not much we can do when major components fail.

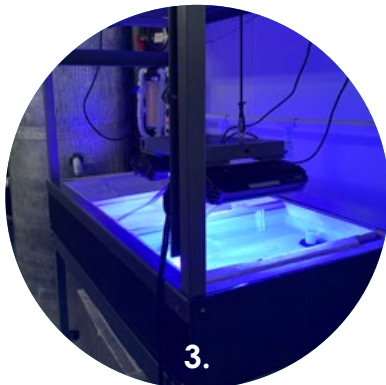
Working with the Finance Department and the President/CEO we have been able to get all the repairs completed with some creative workarounds, and more conventional methods. In some cases, vendors/contractors have donated some of the costs to help us during these challenging times.



2.

Staffing

Staffing hours for our department was reduced by 20% (furloughed) across the board to help the organization meet these challenging financial times. We are still able to cover all shifts (24/7) and address daily expectations, and emergencies



3.

Highlights

- Completed a new Jellyfish culture/rearing system. This will save us money in the future and ensure we have adequate stock for exhibits and additional animals to share with other AZA institutions.
- Completed a refresh of our PIER 39 gift store. Sales are up!
- Supported the team on our lease renewal.
- Supported the team on the Bergen Aquarium project.
- Supported the team in compliance with new COVID-19 Department of Public Health mandates.

1. Main sprinkler line repair
2. New chiller compressor A repair.
3. New Jellyfish culturing
4. Great white shark sculpture in the process of being transported from the Sea Lion Center to Aquarium of the Bay





2020 Major Repairs

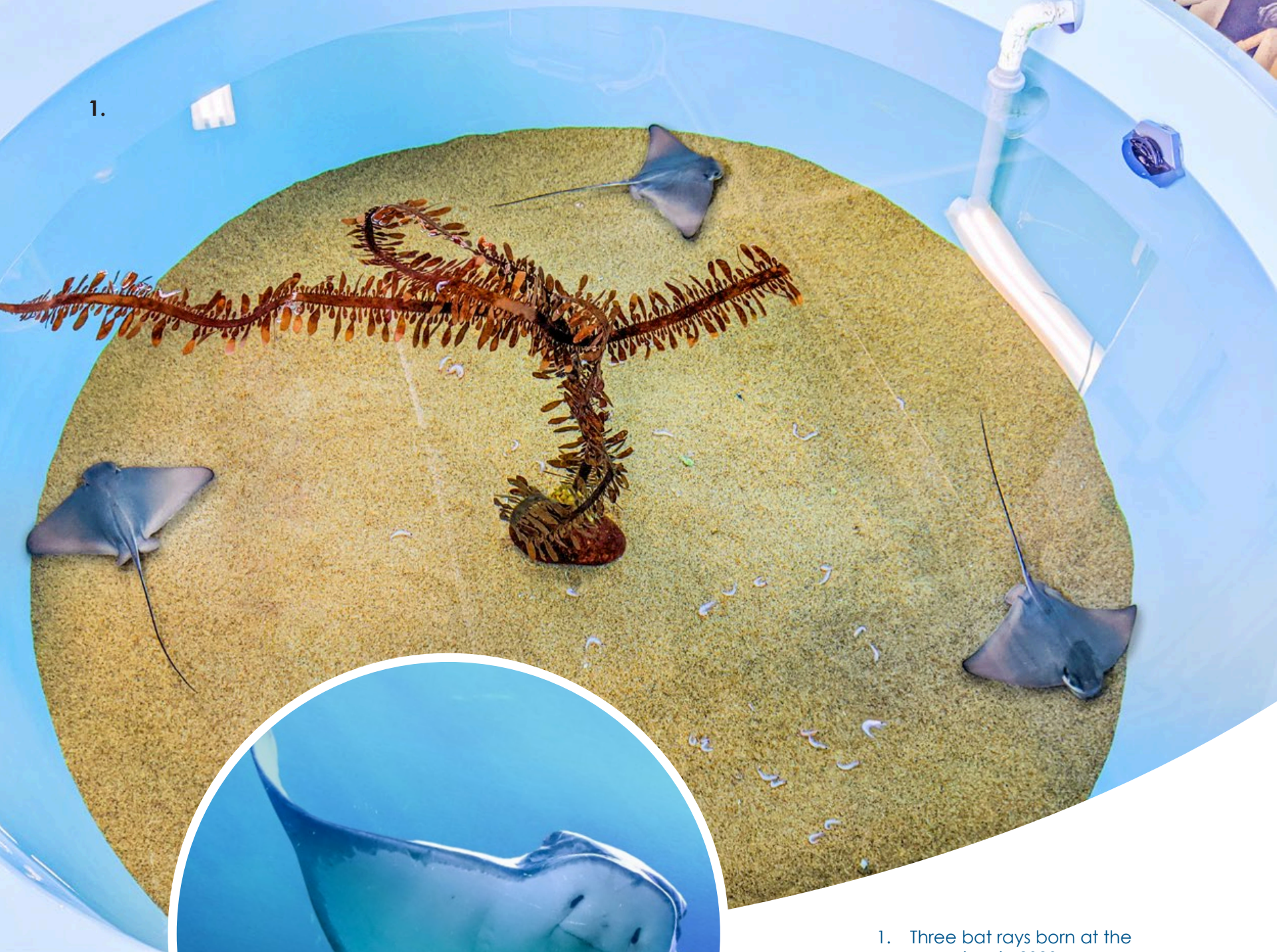
- In January, the main 6" line that feeds the aquariums sprinkler system failed. The line runs from the breakwater under the aquarium and is exposed to salt air and bay water at high tide. A 40' section needed to be replaced in order fix the leak and replace other areas that were failing to avoid future issues. The cost of this repair was \$16,490.00.
- In January, we started to have multiple issues with elevator 1. Both elevator 2 & 3 have undergone modernization in the last few years, however elevator 1 has not had any major repairs or modernizations and still has all original equipment. The major issues we had were the main control boards failed and the elevator was wracked inside the elevator pit from lack of use when we shutdown in March. The elevator was unracked and because the boards were no longer available due to aging out, they had to be repaired. The cost for these repairs were over \$20,000. We are in the process of getting a proposal to modernize the elevator.
- In March, Compressor A on the main chiller failed. We were able to still operate the chiller at 50% capacity. Fortunately, during this time of year tank temperatures are within normal temperature range because of the cold incoming bay water and ambient outside temperatures. This gave us some time to explore options. We decided the best course

of action was to contract with Pacific Coast Trane for a service contract which included the cost of the compressor replacement over 3 years. The chiller is also a Trane chiller. The cost of the replacement over 3 years is \$52,715.00.

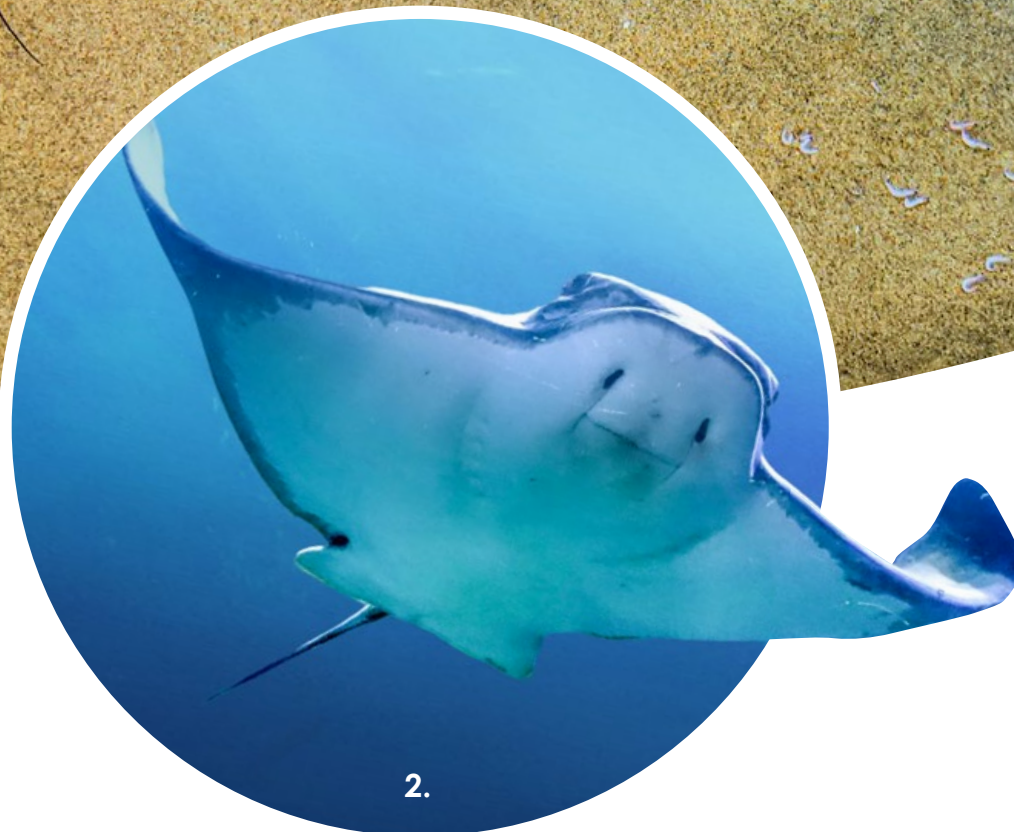
- In September, the raw water draft pump failed and needed to be replaced. Fortunately, this work was completed by staff and the cost associated with repair for replacement of the pump, motor, and 50' motor lead was \$5,084.00
- In September, the automatic exit door for retail 1 failed. The control board had failed. The cost of the repair was \$3,790.00.
- During the months of September and October we experienced (3) power outages. The transfer switch that automatically switches from commercial power to our emergency generator failed and the power had to be manually switched. This is quite dangerous and needed to be addressed immediately. The invoice for the repair has not been submitted to us yet so the cost is unknown at this time.

1. Raw water pump replacement
2. Elevator repair outside Aquarium of the Bay
3. Main sprinkler line repair
4. New chiller Compressor A repair.





1.



2.

1. Three bat rays born at the aquarium in 2020
2. Full grown bat ray
3. Hunter Coughlin welcoming Warren Carlyle at the aquarium Corporate HQ
4. Warren Carlyle from OctoNation during a collaboration meeting



OCTONATION COLLABORATION MEETING

This past October we had the wonderful opportunity to welcome Warren Carlyle and the team from **OctoNation: The Largest Octopus Fan Club** for an Aquarium visit and collaboration meeting! Warren is the Founder and CEO of OctoNation and has been working with the Aquarium of the Bay for the past year in various forms, from social media livestreams to planning future OctoNation/BayEcotarium education initiatives. Special thanks to their team for promoting our face masks on OctoNation's social media platforms with hundreds of thousands of followers and supporters!

OctoNation and their mission to inspire conservation and wonder of the ocean by teaching the world about octopuses aligns beautifully with our goal to protect, restore, and inspire conservation of the San Francisco Bay and its watershed, through education. Look out for much more OctoNation & BayEcotarium involvement in the new year!





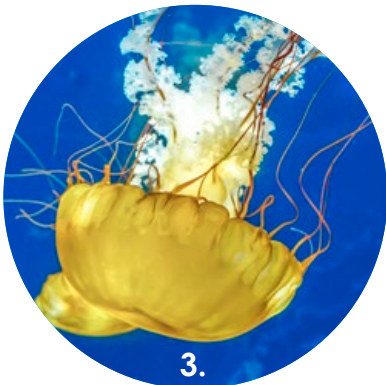
AQUARIUM OF THE BAY



INFORMATION TECHNOLOGY (IT)

Replacing Equipment

- Replaced long distance Wi-Fi connection between the Sea Lion Center and Aquarium.
- Replaced the aging 2009 server with newer model with fully upgraded software.
- Replaced Cisco Meraki router that had failed a few days after reopening. IT had replacement stock on hand so total downtime was only 2-3 hours.



portal which contains a wealth of knowledge about the galaxy ecosystem. This was generously donated to us by Galaxy after the departure of our main source of galaxy knowledge Lauren E.R. left for different opportunities.

Designing and Printing Test Tickets:



COVID-19 and How to Remain Connected:

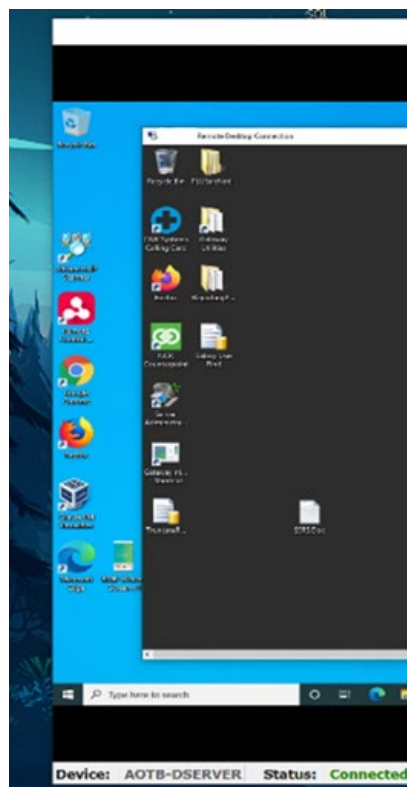
Use of Microsoft Teams, Remote support, and other video conferencing apps to remain connected even in the thick of full lockdown. Thankfully with IT heavily pushing Teams as an application to remain connected before the crisis, we were well prepared to keep our separate departments connected throughout the full lockdown even from home. With our remote support software we were able to remotely connect to any computer that had previously installed the software and thanks to our efforts 90% of company computers had the software when the March stay at home order took place. We in IT were

Galaxy

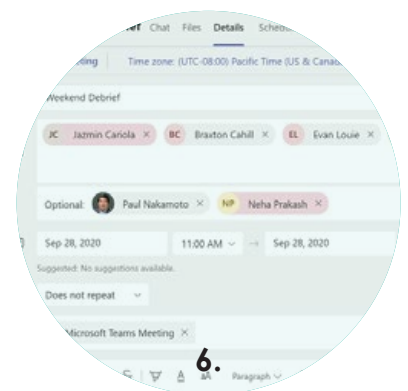
Our POS ticketing system Galaxy has been integrated under the IT team going forward in 2020. We are now responsible for all hardware and software as it relates to Galaxy, which has been further compounded by the need for timed ticketing to reopen in our COVID-19 reality. Our push to move sales contracts to Galaxy Connect API to better integrate with our new timed ticketing initiative, so that guests are able to buy and print timed tickets from 3rd party vendors like Get your Guide, Rush49, and others. Recently we have been given access to Galaxy's learning

lucky that we had already had these items in place before the pandemic as we heard of other institutions that were scrambling to get video conferencing setup with people who were already at home, so IT was largely able to continue operation remotely with little interference from the pandemic with only hardware support being something we could not do remotely.

A Computer within a Computer within a Computer Compu-ception:



1. California ground squirrel at Aquarium of the Bay
2. Andrew feeding shakes to corynactius anemones
3. Sea nettle
4. Orange sky seen outside PIER 39 during California wildfires.
5. Orange sky seen from our corporate office, looking out towards PIER 39
6. Example of implementing Microsoft Teams for meeting during COVID-19.



1.

2.

3.



1. Rivers otters playing
2. Giant Sea Bass in nearshore tunnel
3. Aquarium of the Bay tunnel
4. Diver Biologist Jill Berryman vacuuming around kelp in tunnel





AQUARIUM OF THE BAY



Aquarium of the Bay develops Functional Brief for new national Aquarium in Bergen, Norway

Early this year the National Aquarium project of Norway tapped into Aquarium of the Bay to provide the functional brief for the creation of a new 50,000 m² state of the art aquarium in ocean city Bergen.

An international team from Norway, France, Canada and United States led by President and CEO George Jacob worked closely with Akvariet

Bergen to create the meta narrative, functional and technical parameters, exhibit vignettes and thematic areas, that would provide a baseline directive to Architects and planners. Directors from various departments provided input into marine biodiversity, education programs, exhibit displays, life support system, tourism potential and institutional collaborations for policy and prototypes.



Proposal from MAD Architects for
Dokken Rejuvenation Zone



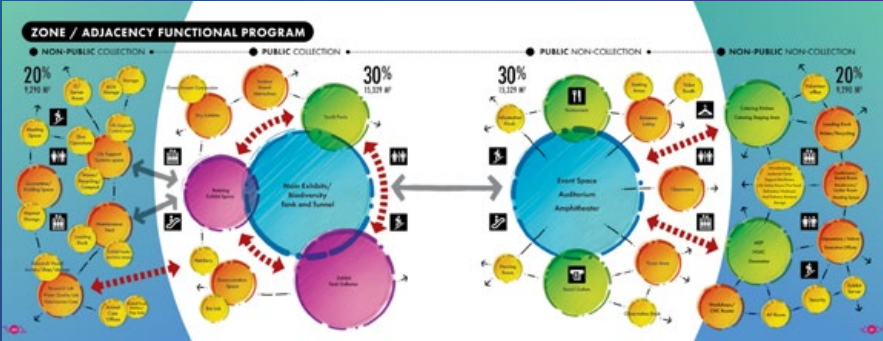


Functional Brief developed by Aquarium of the Bay



IMAGINE...
Vignette 1
SLEEPING SPERM WHALE POD

WALKING INTO the National Aquar-
ium past the ticket and information
lobby into a sloped, dramatic under ocean
ambient experience. Whale clicks and ocean
sounds create a dramatic audio-visual and
galaxy light up the floor surface, rippling with
the currents and swirling marine life. And
the ocean waves are suspended massive
as if the whales sleeping in a community of
hugging and holding in the ocean.





George Jacob and Hunter Coughlin travel to the city of Bergen in Norway to attend a workshop for the National Aquarium project of Norway







STUDIO AQUA

Studio Aqua was launched as a new division of BayEcoTarium in 2018. Since then it has steadily gained traction with its mandate to generate a unified Brand strategy, create digital archives, publications, scientific illustrations, banners, posters, social media presence as well as merchandise for our EcoStore. Significant design impetus can be observed in all internal and external communication, power point presentations, screen-messaging and input towards eco-expeditions, visual backdrops and collaterals.

1. New gift store merchandise
2. Aquarium of the Bay custom design face masks
3. Concept Aquarium of the Bay guide robot, Octo-Bots



1.



2.



3.



1.



2.



1. Welcome back banners for aquarium reopening
2. Tala the porcupine launch banner
3. Annual report covers, 2017-2020
4. The Year in Water, 2018 & 2019 report
5. Business plan report for bank
6. Akvariet Bergen Functional Brief book
7. Museum Futures: Corona Conundrum book
8. Museum Futures: Gen Alpha book
9. Sea Lions in San Francisco book



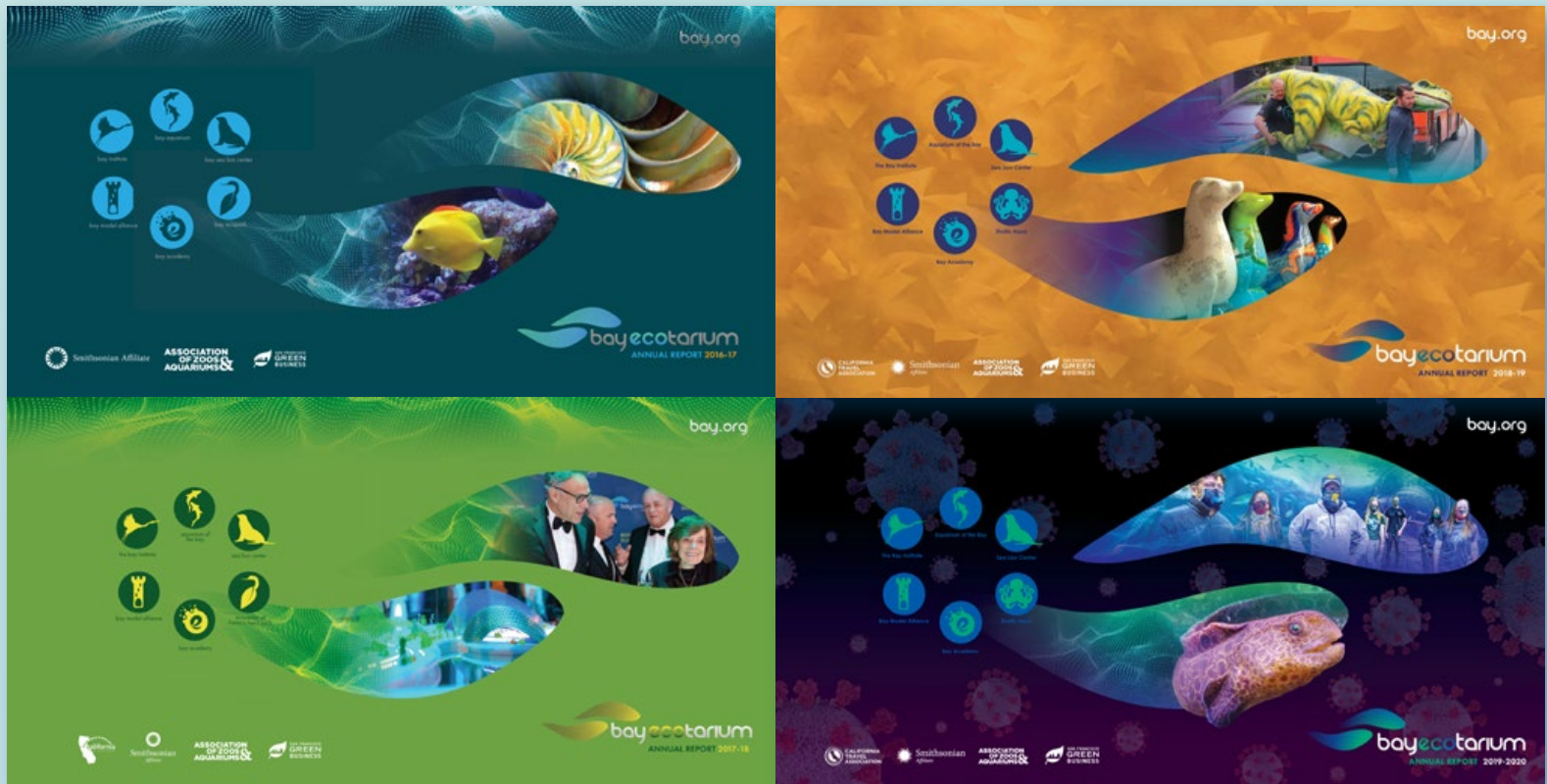
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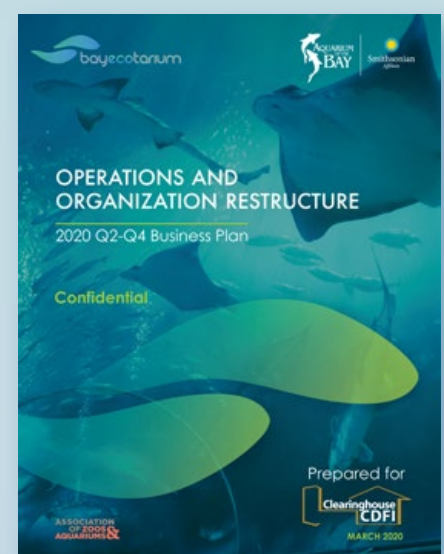
6.



7.



8.



9.



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TALA the porcupine meets TAHOE the River Otter!

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Un-masking the FUTURE

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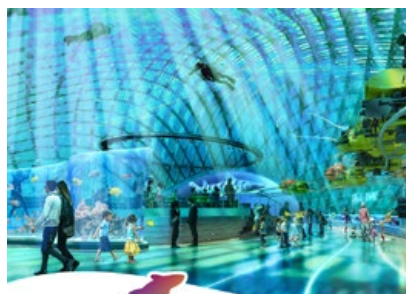


CREATIVE
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FACE
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MUSEUM
FUTURES
CORONA
CONUNDRUM

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SHABBAT
FRIDAY, JULY 31 2020

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BAY & VAUE CULTURE

RSVP TODAY
FREE

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Various mastheads from our support email campaigns during the 28+ week closure as a result of the COVID-19 pandemic



MANTA RAY

Manta birostris

Giant oceanic Manta Rays are the largest rays in the world. They can reach widths of almost 30 feet and live up to 40 years!

These gentle giants live in tropical and temperate waters in coastal and open ocean environments, feeding on tiny plankton. Generally solitary animals, Manta Rays migrate long distances according to movement of plankton, current patterns, and water temperatures.

Sadly, human caused climate change is affecting the availability of plankton they eat, making giant Manta Rays vulnerable as a species. By using renewable energy, we can help protect these beautiful animals for generations to come.



Manta Ray Habitat

While Manta Rays are not found directly within the chilly waters of the San Francisco Bay, they are found in warmer waters surrounding the equator.

LEFT: Graphic designer Brian Harris, Studio Aqua, working from home during shelter-in-place

1. Manta Ray exhibit wall
2. Anniversary shirt
3. Yoga wear concepts



1. Three email signature banners
2. Web pop-up ad for our book, Museum Futures: Corona Conundrum
3. Promotional ad for Sea Lions in San Francisco
4. Tribute poster for Ernie Brooks
5. Escape the smoke social media campaign
6. Retail discount coupon
7. Face mask promotional poster

1.



2.

GEORGE JACOB

MUSEUM FUTURE'S CORONA CONUNDRUM

Museums face new challenges ahead amid a global pandemic and changing technologies.

ORDER TODAY >>

Limited Supply!

3.

30TH ANNIVERSARY SEA LIONS IN SAN FRANCISCO

VIEW THEM AT

AQUARIUM OF THE BAY PIER 39

Discover stunning 6-foot Sea Lion statues painted by Bay Area artists at Aquarium of the Bay, PIER 39

Alaska AIRLINES

CH CHART HOUSE

LEARN MORE ONLINE
aquariumofthebay.org

TRIBUTE TO ERNIE BROOKS

SEA OF LIGHT

For over 70 years, the veteran ocean photographer Ernie Brooks (b. 1935) has dazzled the world with the magical life that thrives in the ocean depths below, weaving international acclaim for underwater photography and audio/visual presentation. Recipient of a staggering array of honors and awards including: 1973 "Triton Award" Inner Space Pacifica, Hawaii; 1975 "NOGI" The Underwater Society of America; 1977 "National Award" Professional Photographers of America; 1971 through 1980 Hall of Fame and Science Foundation; 1978 Camera Craftsmen of America; he has served on the National Advisory Council of the National Society of Arts and Letters; "Hall of Fame" Underwater Photographic Society; was honored by the Oceanic Community of SSI and Nikon for 5000 hours beneath the sea "Platinum Pro Diver Award"; and "The 1996 Partner's Award," from the American Ocean Campaign, to name a few.

With over 15,000 ocean dives, his stunning works have been exhibited at the Metropolitan Museum of Art and the Smithsonian Institution, among others. He is a member of the Professional Photographers of America and is one of forty photographers in the world admitted to the prestigious Camera Craftsmen of America. A granite statue of Ernest H. Brooks II is on display at the Smithsonian Affiliated Aquarium of the Bay in San Francisco, alongside 13 Ocean Pioneers hand blown by famous sculptor, Viktor Bogachev. We express our deep gratitude to Ernie—whose lifetime of dedication has illuminated the world of oceans forever.

"Photography affords us the tools to sculpt with light, to paint with textures and shapes and to write volumes into a single image—creating indelible, lasting impressions of where we have been, who we really are and where our future may take us..."

— Ernie Brooks

AQUARIUM OF THE BAY PIER 39

Smithsonian Affiliate

4.

ESCAPE THE SMOKE • THE BAY • ENJOY AQUARIUM OF

AQUARIUM OF THE BAY PIER 39

TICKETS AVAILABLE ONLINE

Smithsonian Affiliate

5.

SAVE 15%*

ON RETAIL STORE MERCHANDISE

AQUARIUM OF THE BAY PIER 39

LOCATED AT PIER 39 | 415.623.5300 | AQUARIUMOFTHEBAY.ORG

* Coupon must be presented at time of purchase. Not valid with any other offer. 15% merchandise discount at our retail stores only. Expires 3/31/21. Code: 949

6.

UNIQUE FACE MASKS

AQUARIUM OF THE BAY PIER 39

6 UNIQUE DESIGNS
INSPIRED BY LOCAL ANIMALS

AVAILABLE NOW

7.



SEA LION CENTER



1.

Overlooking K-Dock in the marina adjacent to PIER 39, the Sea Lion Center interprets the colony of wild California sea lions now permanently established in this unusual urban location. The Center provides free educational programming on the natural history of California sea lions and the environmental threats they currently face.

1. Sea Lion Center staff giving a presentation outside near K-Dock
2. Child viewing exhibits at the Sea Lion Center
3. Free presentation at the Sea Lion Center
4. Sea lions from PIER 39
5. Visitors at PIER 39 watching sea lion at K-Dock



2.



3.

4.







SEA LION CENTER

Sea Lions in San Francisco

With Pinnipeds on the PIER 39 marking their presence for the 30th year, the dedicated team of professionals at the Sea Lion Center and the Aquarium of the Bay got together to conceive the largest public STEAM initiative in the State of California. The idea grew from a series of exhibit panels to a full-fledged public program that would invite 30 local Bay Area artists to leverage their talent towards environmental messaging with Sea Lions as ambassadorial mascots.

A public competition was announced inviting local artists to submit their design sketches in early 2019 that generated an overwhelming response of entries. A jury drawn from Aquarium of the Bay, the Golden Gates Parks Conservancy, SF Environment, PIER 39 and the Sea Lion Center, selected 30 winning entries.

Within months, six foot tall Sea Lion statues the size of an adult male sea lion, cast in fiber-glass, designed to meet out-door installation requirements, started arriving in a Sausalito warehouse by the Bay Model where artists and naturalists met to render their sketches and concepts to life. As the process of painting unfolded, Gray Line Northern California stepped forward to donate their time and resources to enable clear-coating of the finished works of art and science.

1. Sea lion statues ready to ship to San Francisco
2. Production of sea lion statues
3. Artist Amy Chin painting "Plight of the Sea Lions"
4. Artist Giorgio Landa painting "Maribel"
5. Artist Yi Lin Pei painting "Scavenger Hunt"



Alaska
AIRLINES

CH
CHART
HOUSE









AQUARIUM
OF THE
BAY



Painted sea lion statues
start arriving at Aquarium
of the Bay to celebrate
the sea lion 30th
anniversary at PIER 39



SEA LION CENTER

Mayor London Breed Proclaims January 16 as “SEA LION DAY” in San Francisco!

After recalling her childhood days of watching the frolicking sea lions and losing sense of time, enjoying their riveting presence, their bark and behavioral antics, Mayor London Breed releases a Proclamation marking January 16 as SEA LIONS DAY in San Francisco. The announcement was given during the sea lion 30th anniversary celebration held at the Chart House restaurant's Sea Lion Room, overlooking K-Dock at PIER 39. Taylor Safford, CEO of PIER 39, welcomed guests who had braved a downpour during the January 16, 2020 event.

Following the Prieta Loma earthquake, California sea lions started arriving at PIER 39's K-Dock mysteriously and soon made it their new home. Association of Zoos and Aquariums (AZA) accredited

Aquarium of the Bay (then known as Underwater World) built the floating decks that became the permanent home for the sea lions. The attraction drew thousands of tourists and visitors each year. The affiliated Sea Lion Center naturalists offer educational programs both on the K-Docks and at the learning center with interactive exhibits.

1. Local artists that painted sea lion statues meet during the sea lion 30th anniversary celebration
2. Guests celebrating the sea lion 30th anniversary launch event at Chart House on PIER 39
3. Signed Sea Lions Day Proclamation from Mayor London Breed
4. From left, Sheila Chandor (Marina Harbormaster of PIER 39), George Jacob (President & CEO of BayEcotarium), Mayor London Breed, and Taylor Safford (President & CEO of PIER 39)



2.



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SEA LIONS

in San Francisco





LEFT: Sea Lion
statues poster

BELOW: Sea lion in
San Francisco team



THE BAY INSTITUTE



The Bay Institute (TBI) is the policy, research and advocacy arm of bay.org. TBI's scientists and policy experts work to protect and restore the Bay estuary's endangered fish and wildlife; secure the flows, physical habitat, water quality and other conditions necessary to support a healthy estuarine ecosystem; and promote sustainable water management policies and projects.

Active Program Areas During COVID-19 Crisis

- San Joaquin River restoration
- Endangered species protection
- Agricultural water pollution



1. California Brown Pelican (endangered)
2. San Francisco garter snake (endangered)
3. Mission blue butterfly (endangered)
4. Delta Smelt (endangered)
5. San Francisco Bay Delta Estuary
6. San Francisco Bay, Satellite View

San Joaquin River Restoration

- 2006 agreement negotiated by TBI and its partners to restore flows and fisheries to dewatered upper river, which once supported state's largest Chinook salmon run
- TBI serves as technical advisor to federal Restoration Program overseeing implementation of river restoration agreement
- Helped develop schedules for releasing flows from Friant Dam to optimize habitat extent and temperature benefits for salmon
- Worked with Restoration Program and state regulators on ways to identify and prevent illegal diversions and other water losses
- Analyzed and commented on 16 local groundwater management plans to ensure that pumping does not harm river restoration
- Year round flows, salmon reintroduction begin in 2016
- First naturally returning adult spawners in seven decades in 2019
- 57 returning adults in 2020

Endangered Species Protection

- Delta smelt: important forage fish and ecosystem health indicator; once most common, now rarest fish species
- TBI serves as technical advisor to federal-state-water user collaborative science effort to improve conditions for smelt and other species
- In 2020, helped develop conceptual model and list of 40 candidate actions to protect smelt
- Now initiating similar process to identify and implement candidate actions to restore healthy Central Valley salmon populations
- The “freshwater plume” that flows from the Bay to nearshore ocean waters has an important, but little studied, effect on highly productive coastal fish, seabird and marine mammal populations-
- In 2020, TBI began an intensive analysis of hydrologic, water quality and biological data sets to better understand and document the freshwater plume's role in maintaining the coastal ecosystem

Agricultural Water Quality

- San Joaquin Valley is most impaired part of Bay's watershed due to combination of polluted agricultural runoff, excessive water diversions and groundwater pumping
- Irrigation of semi-desert soils leaches salts and toxic trace elements into shallow groundwater and surface waters and over long term threatens agricultural productivity
- In particular, selenium bioaccumulates in environment and causes fish and wildlife birth defects and mortality
- 1996 TBI-negotiated agreement reduced selenium discharges to San Joaquin River by 90% over time; no more agricultural discharge as of 1.01.2020, but stormwater runoff continues
- In 2020, TBI won agreement from dischargers to voluntarily manage stormwater to meet more protective 2 ppb selenium target, instead of current, inadequate 5 ppb standard
- TBI also worked with state regulators and dischargers to identify emerging water quality issues and improve performance monitoring and evaluation to prevent stormwater impacts on fish and wildlife





THE BAY INSTITUTE



1.

New Publication: The Year in Water, 2018-2019

In order to understand both the health of the great San Francisco Bay estuary and the sustainability of California's water supplies it is essential to know a few key facts:

- How much water falls each year in the form of rain and snow throughout the Central Valley, and when;
- How much is captured by the state's massive water supply infrastructure system, and when; and,
- How much actually makes it all the way down the rivers and streams of the Sacramento and San Joaquin River basins to the Delta, and ultimately to San Francisco Bay, and when.

Knowing how much water actually flowed down rivers and through the estuary – as opposed to total precipitation – is especially important, because the viability of fish and wildlife populations is closely related to the amount of actual water movement that they experience. The large-scale storage, diversion, and transfer of water throughout the Bay's watershed (and to areas outside of it) radically alters the amount and timing of natural runoff, with devastating results to fish, wildlife, and their habitats throughout the Bay estuary and the river systems that feed it.



2.



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It's easy to find out how much total precipitation there was – whether it's a wet or dry year. But information regarding how total precipitation was shaped into the actual hydrograph – the magnitude and spatial-temporal extent of how freshwater runoff was altered – is harder to come by.

Visit us online for the latest publications from The Bay Institute.

www.bayecotarium.org/publications

1. Augmented summer flows and a change in the timing and pattern of spring flows impact riparian vegetation along the Sacramento River.

Photo by Greg Reis

2. Sack Diversion Dam

Photo by Greg Reis

3. Thanks to wet year flows exceeding minimum restoration flows and improving fish passage conditions at obstacles on the San Joaquin River, over 300 Spring-run Chinook Salmon that hatched and reared in the river returned in 2019 to spawn below Friant Dam.

Photo by San Joaquin River Restoration Program

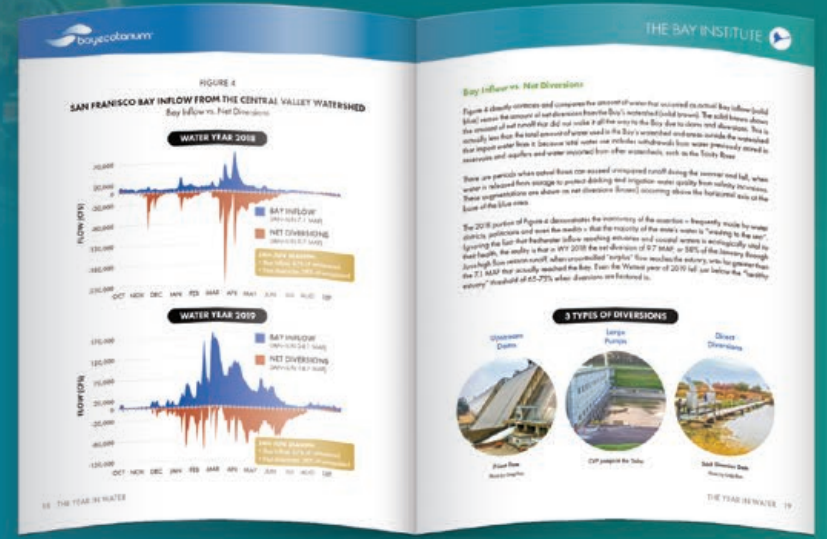
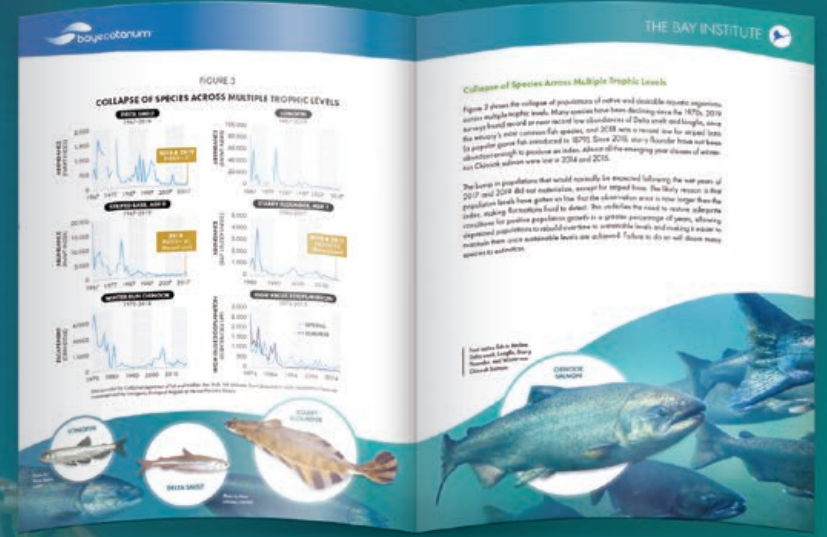
4. The Golden Gate Bridge in San Francisco

5. The Year in Water, 2018-2019 publication by The Bay Institute

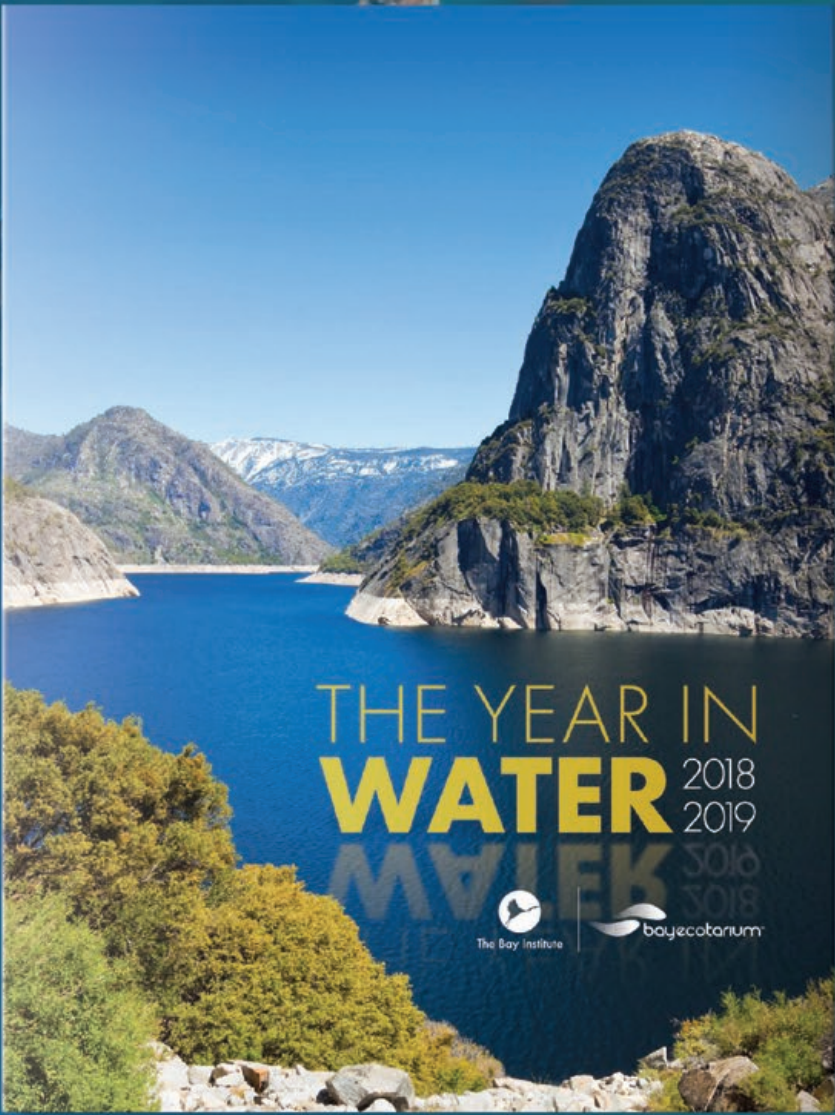




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BAY MODEL ALLIANCE

The Bay Model and the Bay Model Visitor Center form a research and education facility built by the U.S. Army Corps of Engineers. Inside is one of the most fascinating scientific tools you'll ever see: a working hydraulic model of San Francisco Bay and the Sacramento-San Joaquin River Delta systems that simulates tides, currents, and sediment movement the Bay Model is used by scientists and engineers.

What makes the model special is that its pipes and hydraulics make it a real simulation of the water environment of San Francisco Bay and the Delta. The analog model is used to simulate the effects of everything from oil spills to upstream dams, and from water diversions to floods caused by global warming. The Bay Model Visitor Center provides a variety of public events and educational programs each month.



The location provides for a stunning venue for of special events and presentations. Tours are available for groups with advanced reservations, and can be tailored to the technical sophistication of the group. The Corps of Engineers also makes the Visitor Center available to scientific and educational groups for meetings and seminars. As part of the alliance, bay.org assists in retail and merchandise.



1-6. Photos at the Bay Model Visitor Center



5.



BAY ACADEMY



On March 16, Dr. Dayne Buddo (the Academy's first Director) was appointed and also given the responsibility of the Education Department of the Aquarium. Unfortunately, this was also the day that the Shelter-in-Place was announced to be effective the following day. Regardless, this challenge was met with optimism in this new reality that we were facing as an organization.

Partnerships with International Organizations

The Bay Academy sought to establish key partnerships to develop and advance a robust program on Climate and Oceans. The partnerships are centered on providing mutual opportunities for research, teaching, staff/student exchange, joint funding initiatives and information sharing. Through this effort, the BayEcotarium signed 5-Year Memorandum of Understanding instruments with:

- Sophia University, Japan
- Pontificia Universidad Javeriana, Colombia
- Misión Tiburón (NGO), Costa Rica



E-Learning Modules

The Academy developed and launched its first 2 e-Learning modules – Bioacoustics and Environmental Justice. These are built on an ArcGIS Platform and covers the salient concepts of each topics, demonstrated using case studies from the Bay Area and globally.

The Bioacoustics module brings into perspective the various habitats in the Bay Area and associated wildlife, sonar communication among marine creatures, the types of human-generated ocean noise and how these interrelate and result in negative impacts to ocean-dwelling animals. The module on Environmental Justice brings into focus the Bayview Hunters Point neighborhood, the environmental issues and associated negative impact on the lives of the residents. It also draws on similar case studies across the nation, including a Call to Action.

1. George Jacob receiving ROV from SoFAR Ocean Technologies, present by their Technical Lead, Zack Johnson
2. Dr. Dayne Buddo doing fish survey in Cabo Pulmo National Park, Mexico
3. Partnership with Sophia University, Japan

Welcome to Bay Academy eLearni...
Module Outline

Lesson 1: The Story of Hunters Point Naval Shipyard

Activists in the Bayview neighborhood are concerned that the shipyard is responsible for the environmental problems in the neighborhood. In lesson 1, students will look at articles to construct a timeline of what happened at Hunters Point.

Learning Goals:

- To create a timeline of events that happened at Hunters Point.
- To evaluate multiple sources of information presented in different formats and media.

Lesson 3: SF Bay Marine Animal Communication and Human Noise

In lesson 3, students will engage with fish sound productions and whale vocalization. They will learn how animals make and use sound for survival.

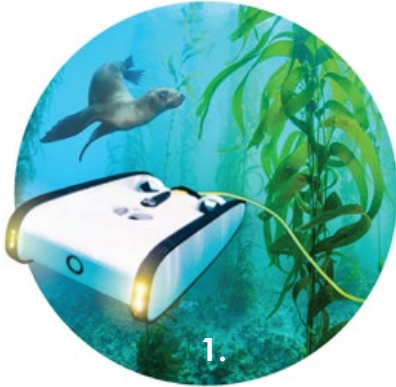
The students will listen to animal communication and learn the negative effects of noise pollution from shipping, offshore drilling, and outboard boat motors.

ABOVE: Snapshot of Environmental Justice e-Learning Module

RIGHT: Snapshot of Bioacoustics e-Learning Module



BAY ACADEMY



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BayEcotarium Edu-Ventures

With the educational system switching to a virtual platform, the Bay Academy developed a product where students as well as the general public, can embark on a virtual field trip to dive the waters of Northern California. This is accomplished with the use of an underwater remotely operated vehicle (ROV), which was acquired through a donation from SoFAR Ocean Technologies. The ROV is deployed in the field, with an underwater naturalist narrating the dive based on what is seen through the lens of the ROV. This footage and narration are shared virtually real-time with the audience, allowing an interactive session while the ROV is active underwater.

BayEcotarium Expeditions

The Bay Academy, with strong support from the Sales and Marketing Team has developed and will lead an annual Expedition Series. This program is specifically designed to immerse the participants in the frontline of climate change and ocean conservation initiatives around the world. These specially designed trips will be targeted to a wide audience from University-level students to the general public who want hands-on exposure in a remarkable location, working with a marine scientists and other local experts. On each expedition, participants would be trained in the various techniques

needed for the activities, such as shark-tagging, coral restoration, underwater visual fish surveys, marine invasive species control, marine protected areas management among others. The expeditions will be led by Academy Director, Marine Biologist Dr Dayne Buddo, who will take participants to locations such as Costa Rica, Mexico, Cuba, Marshall Islands, among others slated to begin in mid-2021.



1. Promotional graphic for BayEcotarium Edu-Ventures
2. Giant Sea Bass in Kelp Forest
3. Dr. Dayne Buddo measuring juvenile Tiger Shark in Costa Rica
4. Hunter Coughlin set up to operate ROV and beam footage remotely

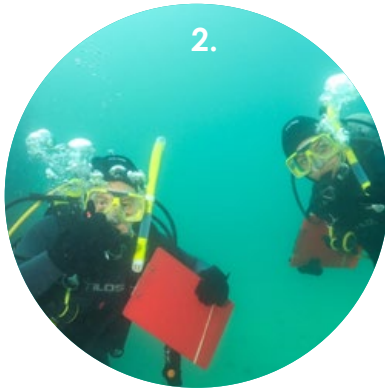




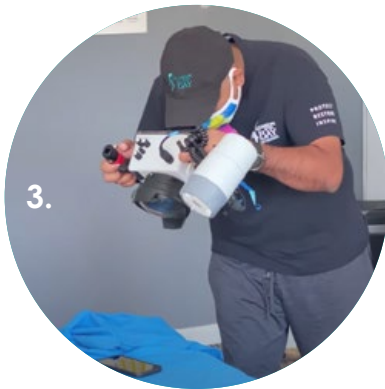
BAY ACADEMY



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Diving for Citizen Scientists Course

In the Summer, the Academy designed and launched a new course for scuba divers who want to do more in marine conservation and to work more with the organization in its mandate. This included training in fish identification, underwater photography, animal care, and also included an Aquarium dive. In its first run, 8 participants successfully completed this course, and while doing so, earned three (3) PADI diving certifications. The course was taught by staff of the Academy and the Animal Care Team.

Internship Program

The Academy hosted 4 College-aged Interns on a voluntary basis over the Summer and the Fall. These persons were in their final stages of their degree program in ocean and climate studies and wanted to learn from an established organization. The Academy benefited from their involvement through the development of content for our Island Sustainability Course, creation of a digital biodiversity catalog as well as the creation of a Podcast Series "Beyond the Pier". Following on from this, the Academy engaged another intern to develop content on UN Sustainable Development Goals and Ocean Conservation, also assisting with project implementation and grant writing.

Podcast Series – "Beyond the Pier"



An inaugural Podcast Series was launched in the Summer and was named "Beyond the Pier". This series is available on popular podcast platforms such as Spotify, Google Podcasts and features episodes on marine life of Northern California, as well as the River Otters highlighting animals that we have at the Aquarium. The episodes have been released once every 2 weeks, and we create a bank of episodes to ensure continuity.

1. ROV about to be deployed
2. Students on Training Dive
3. Dr. Dayne Buddo teaching Underwater Photography
4. Diving for Citizen Scientists Course students





1.



1. Dr. Dayne Buddo was a co-author to a peer-reviewed publication, "Global Status and Conservation Potential of Reef Sharks"
2. Cover for Museum Futures: Corona Conundrum

Publications

As the world ushered in the New Year in 2020, no one could have imagined how dramatically life would come to a grinding halt globally within a matter of weeks. Sweeping changes to interactions, community engagement and conversations migrated rapidly to the internet and the ecosystem of Internet of Things (IoT) at an unprecedented pace. Museums by definition, are public institutions and destinations that attract visitors.

The COVID-19 pandemic has sent shock-waves through the world of museums, as institutions grapple and come to terms with a new reality hinging upon social-distancing, reduced staffing, lower operating budgets and shrinking philanthropy in conjunction with exploring new ways of doing business and sustaining membership offerings. From the nose-diving travel and hospitality numbers to the sudden spike of activity on social media to the skyrocketing use of Zoom, to the boom of Apps adopting to the new norm, museums, aquariums, science centers and other destinations of augmented learning are scrambling to unmask new means, methods and metrics.

As the efficiency models, heuristics and haptics get more sophisticated, Artificial Intelligence (AI) and Emotional AI driven world of the Alexa and Siri surrogates will become exponentially omniscient and omnipotent. The book takes a sweeping overview of remotely accessing

experiential human interaction and builds scenarios of alt-options and adaptive innovation stemming from societal quarantine. It argues that the time for reactive measures must be replaced with pro-active methods of progressive change, even as it re-defines museums as evolving dynamic souls of civil societies.

Dr. Dayne Buddo was part of a global team of 120 researchers across 58 countries and co-author of a peer-reviewed publication "Global Status and Conservation Potential of Reef Sharks". The study was published in one of the world's top scientific journals – Nature. The study reflects the connectivity of ocean conservation issues which require a holistic and coordinated approach across geopolitical boundaries. Conservation of this critical group of predator species is essential for the health of the oceans, and the ecosystem services they provide. For small island developing states (SIDS), the conservation of sharks converges with the cross-cutting issues of fisheries management, tourism and coastal development complicating the decisions of policy-makers.

Dr. Buddo currently has two other manuscripts under peer-review with expected publication in early 2021.



GEORGE JACOB

MUSEUM F·U·T·U·R·E·S

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CONUNDRUM







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2020 NEW MEMBERS

Norma Lima	Elizabeth Vale Martinez	Chiyoko Mochizuki	Laura Nielson
Tim Lisk	Xiomari MARTINEZ	Michael Montoya	Masataka Nishiga
Jin Lit	Matthew Martinez	Samantha Morales	Alex Offerman
Vivian Liu	Olivia Martinez - Stewart	Daniel Moran	Afam Ogbunwobodo
Kimmai Lonardo	Simone Masson	Angienelle Morata	Damion Olson
Melissa Looney	Tabitha Mayfield	Blake Morgan	Alicia Omer
Kris Lopez-Atherton	Brittany Mccauley	Charlie Moss	Stephanie Orlando
Shirley Loss	Lucinda McEvilly	Naomi Most	Augusto Ortiz
Steven Lund	Chris McGann	Deepa Mungara	Susan Osullivan
NGA LY	Patrick McGinn	Ana Muniz-Laguna	Nelson Otero
Cheryl Maahs	Elizabeth McGraw	Bharanikumar Munuswamy	Colette Parrett
Quoc Chan Mach	Brendan McGuigan	Peggy Muraski	Terry Parsons
Navneet Maharaj	Kate McLean	Isla Murphy	Aditi Patel
Cheryl Maher	Deepa Mehta	Patricia Myers	Teresa Patino
Maya Mahrer	Nitu Mehta	Karthik Nagarajan	Maira Isabel Patino
Sonasi Maka	Amanda Melo	Vishaya Naidoo	Anneli Paulsson
Dawn Makley	Gabriel Mena	Juhi Nandwani	Kristin Pearman
Devender Manchukonda	Stephen Menaquale	Kian Narachi	Sara Pedisich
Elizabeth Mangalindan	Henry Mestaz	Lauren Nevins	Tammie Pereira
Julie Mann	Peter Michailidis	Marife Newton	Jacqueline Perez
Danny Mansukhani	Lori Michetti	Ann Ng	Jeffrey Perlow
Ivan Maranah	Jacob Midkiff	Kacee Ngo	Tiffany Peterson
Rikki Markson	Kelsey Miller	Lena Nguyen	Shawn Petruk
Leonor Marquez	Derrick Mitchell	Tram Nguyen	Irene Pizarro
Julian Martinez	Russell Miyashiro	Tu Nguyen	Richard Pon

Mabeyli Pool	Jessica Rothwell	Marc Snircich	Catherine Vendola
Warren Puffer	Adhham Salah	Cristopher Snyder	Chun hsuan Wang
Syed Quadri	Jose Salinas	Maisie Sokolove	Andi Wang
Kapil Raju	Karthik Sampath	Ana Soriano	Michelle Watson
Carolyn Ramirez	Freddy Sandoval	Chelsie Spacke	Ed Wetter
Nicholas Ramirez	Janice Sandoval	Kelly Squer	Bimo Wijoyo
Gustavo Rangel	Allyson Santos	Sterling Stephenson	Roger Williams
Remonda Rantisi	Yulia Sas	Susan Stoddard	Rebecca Wilson
Shaskikontha Rao	Mark Saturnio	Andrea Struzas	Jeremey Witkowski
Taraka Ravi	Jessica Seigel	Samuel Tan	Amanda Witz
Manoj Ravindran	Nicole Selcuk	Angelica Taskina	Anna Wong
Kyle Reid	Michelle Semba	Stephanie Taylor	Peter Woods
Tim Reynders	Hare Shah	Linda Thompson	David Wright
Cleora Risk	Inna Shatsky	Sarah Thomson	Athena Xenkins
Ester Rivas	Lucy Shepperd	Jerry Ting	Iselia Yanez
Sophia Rivera	Henry Shih	Annie Tran	Peter Yee
Ervin Rivera	Tim Sickles	Jennifer Trujillo	Seung Yu
Donavon Roberson	Stephanie Sims	Helen Tsang	Yuan Yuan
Matthew Roberts	Richard Sinad	Rebecca Valdez	Yi Yuan
Angie Robinson	Vanessa Slater	Arianna Valdez	Asif Yusufov
Princess Robinson	Adam Slotnick	Rosa Valencia	Wen wen Zhang
Angel Rodriguez	James Smith	Alex Van Wagner	Jiao Jiao Zhang
Lynn Rogers	Christopher Smith	Carol Ann Vance	Yi Zhou
Tanya Romero	Terryl Smith	Mark Vanvelzea	Quan Zou
Jennifer Rosa	Michele Smith	Sandy Vella	Brayan Zuniga





APPENDIX B

UNAUDITED REPORT 2019

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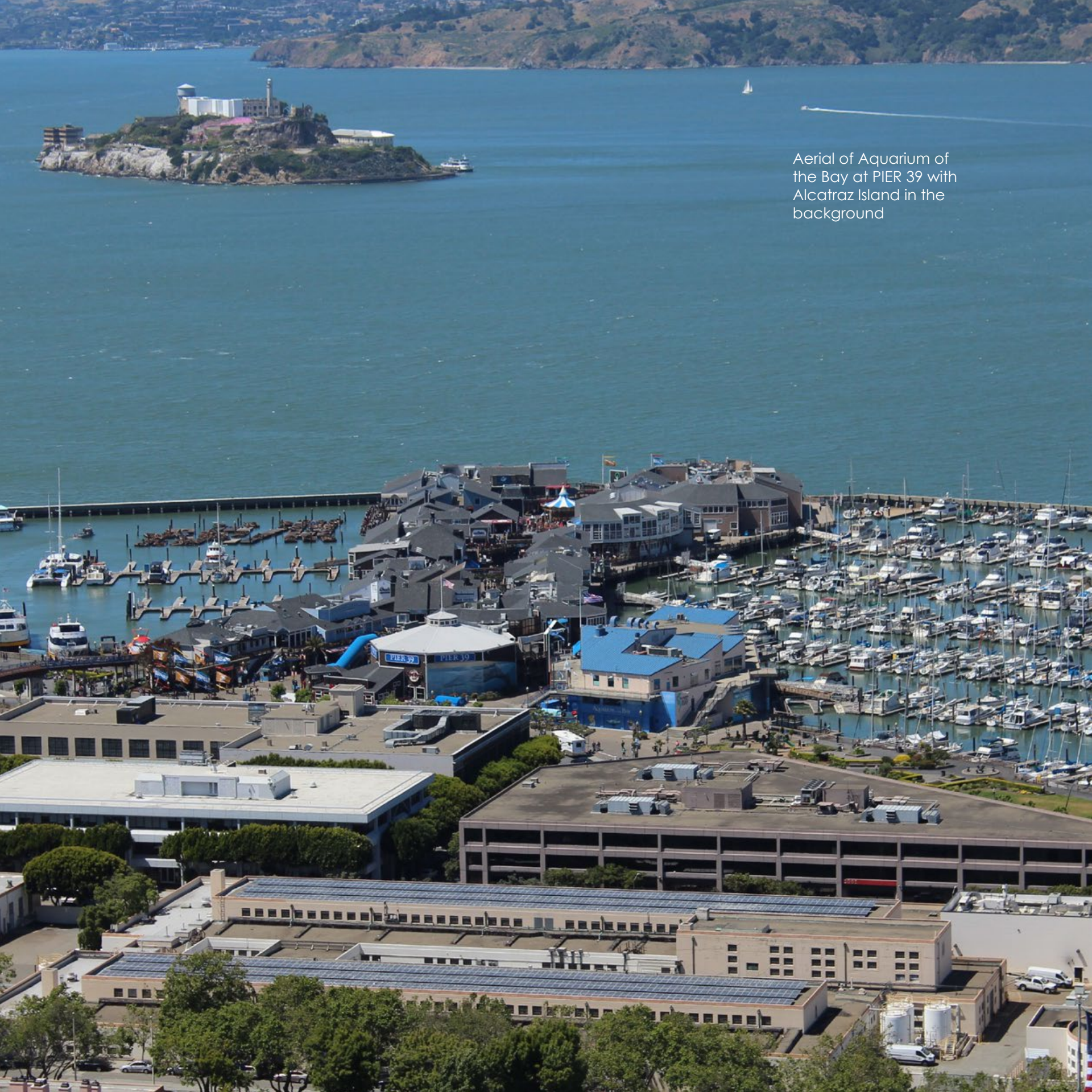
2019 STATEMENT OF ACTIVITIES (INCOME STATEMENT)

	<u>Jan-Dec 2019</u>
Revenue	
Development Revenue	
Development Revenue - Donations & Sponsorships	216,560.67
Development Revenue - Fundraising Events	62,025.00
Development Revenue - Grants & Contracts	287,799.15
Development Revenue - Memberships	151,322.95
Total Development Revenue	717,707.77
Operating Revenue	6,477,926.53
Group Sales Revenue	1,826,217.40
Retail Revenue	1,120,317.11
Special Event Revenue	297,126.71
Onsite Program Revenue	12,914.00
Offsite Program Revenue	5,465.00
Rental Income	30,500.00
Total Revenue	<u>10,488,174.52</u>
Cost of Good Sold	
Cost of Goods Sold - Retail	338,450.61
Total Cost of Good Sold	<u>(338,450.61)</u>
Gross Revenue	<u>10,149,723.91</u>

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2019 STATEMENT OF ACTIVITIES (INCOME STATEMENT)

	Jan-Dec 2019
Expenditures	
Salaries & Benefits	5,587,852.45
Contract Services	287,614.60
Professional Fees	379,511.34
Office Expenses	141,830.27
Travel Expenses	296,124.87
IT Expenses	258,353.66
Repairs & Maintenance	90,114.84
Utilities	559,202.01
Operating Expenses	411,118.25
Advertising Expenses	270,493.53
Taxes & Licenses	23,530.56
Insurance	115,900.22
Administrative Expenses	1,228,681.20
Total Expenditures	(9,650,327.80)
Change in Net Assets	499,396.11
Other Income and Expenses	
Other Income	10,483.22
In-Kind Revenue	15,234.00
Other Expenses	126,685.62
In-Kind Expenses	15,234.00
Depreciation & Amortization Expenses	834,689.66
Total Other Income and Expenses	(950,892.06)
Net Assets	(451,495.95)



Aerial of Aquarium of
the Bay at PIER 39 with
Alcatraz Island in the
background

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STATEMENT OF FINANCIAL POSITION (BALANCE SHEET)

as of 12/31/19

	12/31/2019
Assets	
Cash or Cash Equivalents	1,202,588.86
Accounts Receivable	184,051.99
Other Accounts Receivable	144,696.76
Inventory	98,732.51
Prepays	113,644.08
Fixed Assets	5,468,006.64
Other Assets	123,334.40
Total Assets	7,335,055.24
Liabilities and Net Assets	
Liabilities	
Accounts Payable and Other Current Liabilities	1,951,440.09
Long-Term Liabilities	3,185,000.00
Total Liabilities	5,136,440.09
Net Assets	2,650,111.10
Change In Net Assets	(451,495.95)
Total Liabilities and Net Assets	7,335,055.24





APPENDIX C

ECOCURRENT NEWSLETTER, 2020



Above: Aquarium of the Bay launches Sea Lions in San Francisco. Below, George Jacob, President & CEO of bay.org with San Francisco Mayor London Breed, on right.



Aquarium launches Sea Lion STEAM program.

Mayor London Breed proclaims
January 16: SEA LION DAY
in San Francisco!





Message from the President & CEO

Dear Friends,

As we enter Week 17 of Shelter in Place, we are preparing for a new norm of operating and re-tooling our business model. Our education and animal care teams are shifting gears and transitioning to online learning platforms and generating e-learning modules..

Even as all Aquariums across California are beginning to reopen to the public, our green light is still in the "Pause" mode here in San Francisco. With staff furloughs and staggering fiscal losses topping \$4 million, we are acutely conscious of dipping destination tourism projections that are at a near standstill in the Bay Area. Over the years, the aquarium has contributed millions in direct and indirect tax revenues, serving millions of visitors through our programs and exhibits. It's multiplier







The Bay Institute



Aquarium of the Bay



Sea Lion Center



Bay Model Alliance



Bay Academy



Studio Aqua



CALIFORNIA
TRAVEL
ASSOCIATION



Smithsonian
Affiliate

ASSOCIATION
OF ZOOS &
AQUARIUMS



SAN FRANCISCO
GREEN
BUSINESS