

# MOSS LANDING MARINE LABORATORIES

ANNUAL REPORT:  
ACADEMIC YEAR 2015-2016





# Contents

Message from the President	4	Appendix 1: MLML Grants & Awards	48
Executive Summary	5	Appendix 2: MLML Publications	50
Mission and Goals	6	Appendix 3: Media Highlights	60
Organization & Governance	9	Appendix 4: Governing Board Members	63
Operations	14	Appendix 5: EO1103 – CSU Response March 2016	67
Financials	17	Appendix 6: EO1103 – MLML Conditional Authorization Sept 2016	79
Academics	22		
Faculty	25		
Student Accomplishments	35		
Friends of MLML	39		
50th Anniversary	41		
Looking Forward: 2016 to 2021	42		





## Message from San José State University President Mary A. Papazian

For five decades, Moss Landing Marine Laboratories (MLML) has educated aspiring marine scientists, advanced understanding and appreciation of coastal ecology, and helped protect the world's fragile marine ecosystems.

As the California State University's lead administrative campus supporting MLML's vital teaching, research and public service mission, San José State University (SJSU) is proud of the lab's rich legacy and deeply committed to its future.

MLML has distinguished itself as an institution dedicated to excellence that serves as both a degree-granting and research enterprise.

As this report attests, the lab offers multidisciplinary graduate and undergraduate academic programs, utilizing the Monterey Bay sanctuary as a living classroom. And this academic expertise informs and enriches cutting-edge research that last year was represented in 155 scientific publications and 90 research grants and awards totaling \$16.7 million.

MLML last August commemorated its 50th anniversary in a series of public events and celebrations. I was thrilled to participate in the festivities and tremendously impressed by the devotion of faculty, staff, students, university leaders, elected officials and private supporters to the lab's mission and future.

Our collective future depends on healthy oceans and vibrant coastal environments. On behalf of all of our partners, I hope this report informs your understanding of MLML's vital work and encourages you to become involved in its mission.

Mary A. Papazian  
President  
San José State University



SJSU SAN JOSÉ STATE UNIVERSITY

California State University MONTEREY BAY

CALIFORNIA STATE UNIVERSITY EAST BAY

CALIFORNIA STATE UNIVERSITY Stanislaus

SAN FRANCISCO STATE UNIVERSITY

FRESNO STATE

SACRAMENTO STATE

## Executive Summary 2015-2016

Moss Landing Marine Laboratories (MLML) administers the Master of Science in marine science program for California State Universities (CSU) in northern and central California, and is dedicated to the pursuit of excellence in both education and research. An outfitted marine operations department, active research diving program and state of the art equipment allow for cutting edge research in a wide variety of disciplines including: marine ecology; biology of marine plants, invertebrates, fishes, turtles, birds and mammals; oceanography and marine geology; chemistry and biogeochemistry. MLML is known for a hands-on, field-oriented approach, which places our students, faculty, researchers and staff at the frontiers of marine science worldwide where discoveries are being made. MLML provides the skills and training so students will become successful scientists, teachers and resource managers serving societal needs involving marine issues.

MLML had a dynamic year with the addition of two new faculty members and six new research affiliates. Marine operations are evolving in new directions given the loss of the R/V Point Sur, a new five-year strategic plan is under development, and strategies for a major fund-raising effort are underway in collaboration with our administrative campus, San José State University (SJSU). A new online general education course in Oceanography will greatly expand our educational connection with undergraduates at the consortium campuses.

Future plans include development of a 5-yr Strategic Plan, a new GE Oceanography course, a proposal to develop a Center For Aquaculture, planning for a new research vessel in collaboration with UCSD, and a large fund-raising effort with support from SJSU Advancement.

MLML operates with about \$3.6 million from the State (CSU, SJSU, and consortium campuses), an average of \$500,000 indirect costs returned from contracts and grants administered by San José State University Research Foundation (SJSURF), and \$190,000 of administration and facility supplemental funding issued to MLML by the SJSURF. The administrative campus of the MLML consortium, SJSU, does not extract any indirect costs generated by MLML because the MLML campus has a number of expenses (e.g. library, vessels, vehicles, diving, IT, safety) that cannot be covered by services at SJSU. During AY 15-16, MLML researchers acquired 90 grants and awards totaling \$16.7 million, and produced 155 scientific publications.

MLML provides a world-class Master’s program in marine science, and is the only multi-campus entity in the CSU that offers a curriculum and a Master’s degree program. Although undergraduate and graduate students attend courses at MLML, in AY 15-16 87% (n=71) of the 81 students were graduate students. In AY 15-16, most of the graduate students matriculated through CSUMB (n=41) and SJSU (n=30) with the student fees paid to the campus of matriculation.

Some of the successes of the year included 12 students graduating with a M.S. degree, a dynamic MLML Open House with more than 1,800 of the public visiting MLML during a weekend in April, \$20,500 in scholarships and awards presented to students, and MLML celebrating its 50th anniversary. The highlight of the 50th Anniversary was the return of at least 350 alumni (more than 50% of graduates) to MLML for a weekend celebration.


Mission & Goals

Mission

The mission of MLML is to provision the marine scientists of the future. This means that undergraduate and graduate students are provided with unparalleled access to faculty advisors and teachers, research facilities, and an incredible local marine environment.

Goals


Our primary goal is to provide students with the necessary skills to succeed in academia, governmental agencies, conservation, and management. The following describes how we have met our specific goals during the past year.



**Goal One: Provide skills in communication, analytical computation, marine science literacy, critical thinking, and technical aspects of their discipline.**


We continue to revamp our courses to better serve the changing needs of the students to keep pace with the evolving job market. This requires constant vigilance regarding the necessary skills of science, conservation, and policy. Primary among these skills are communication and analytical tools. We have developed new courses to better tailor our analytical courses with the various

disciplines of marine science (i.e. oceanography and marine biology). The analytical methods used by oceanographers are somewhat different than those used by biologists, so we have tried to create courses that serve both disciplines. We also have restructured course material to continue stressing critical thinking, which is a foundational skill in sciences. With new faculty, new course material, and new use of technology, we continue to provide influential material for the various disciplines covered by the M.S. degree in marine science at MLML. We continue to assess this goal based on the quality of the Master’s Thesis that is generated by all our M.S. students. We have assessed this qualitatively but we are generating a rubric to more quantitatively assess this goal.



**Goal Two: Graduate students should obtain an M.S. degree within 3 years of entry into the program.**

Because our M.S. degree in marine science is field based, it requires a fair amount of time to devise, assemble, conduct, and analyze research in the field setting. The vagaries of weather, equipment, changing sea conditions, and lack of financial support cause delays and greater effort. These characteristics make it difficult to achieve graduation in three years or less. MLML faculty and administration are committed to continuing to support student success by reducing the time it takes our students to complete their M.S. degree. During AY 2015-2016, we analyzed the time-to-degree data for all MLML alumni who had graduated within the previous four years, and found that the average time-to-degree for 2015 graduates had fallen to approximately 4 years since entry in the MLML program, down from an average time-to-degree of 6 years for 2013 graduates. While our hands-on, laboratory and field-oriented approach to our curriculum acknowledges unpredictability (of sea and environmental conditions, etc.), we continue working towards our goal of an average time-to-degree of 3 years by evaluating potential initiatives including, but not limited to, refining the process of thesis proposal development and approval, revising the process of thesis draft submission and approval, and increasing funding opportunities to offset our students’ financial burdens.



**Goal Three: Provide a broad, multidisciplinary understanding of marine science and the current issues of our time.**

We have largely achieved this goal by offering basic courses in the major disciplines coupled with specialty courses in relevant issues of the day. These special courses include: Climate Change, Coastal Erosion and Habitat Mapping, Cycling of Trace Metals and Nutrients in the Coastal Zone, Modeling Marine Systems, and Ocean Acidification. We also have incorporated these concepts into the core courses (e.g. Physical Oceanography, Geological Oceanography, Chemical Oceanography, Biological Oceanography, and Marine Ecology). We have not assessed this goal recently via our course rubrics, but we will in the near future.

MLML is known for a hands-on, field-oriented approach, which places our students, faculty, researchers and staff at the frontiers of marine science worldwide where discoveries are being made.





Goal Four: Solve problems of societal relevance.

We have largely reached this goal by partnering with MARINE (Monterey Area Research Institutions Network for Education), which is a collaboration between the Center for Ocean Solutions at Stanford University and seven Monterey Bay area academic campuses, including MLML. This assortment of educational institutions provides a forum for a variety of events that provide leadership development and education for students at MLML, helping create the marine science leaders for the future. The primary topics include: climate change, ecosystem health, and land-sea interactions. MLML recently helped develop and taught a regional course regarding the impacts of vessels on whales which was attended by students from MLML, Naval Postgraduate School, Middlebury Institute for International Studies, Stanford University, and CSU Monterey Bay.

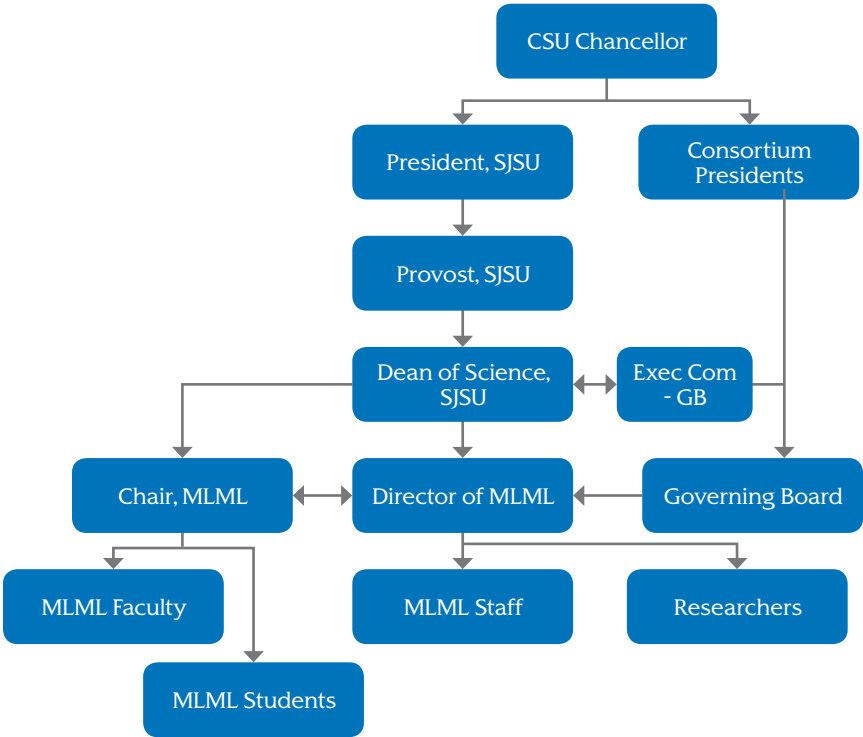
MLML has largely met its four goals of (1) improving the scientific and communication skills of our graduate students, (2) decreasing the time until graduation, (3) broadening student understanding of current issues of our time, and (4) discussing and solving problems of societal relevance. We are in the final stages of establishing a (proposed) Center For Aquaculture at SJSU and the consortium, with the eventual goal that this Center would represent the entire CSU.



Organization & Governance

Organization

The organization of MLML within the larger CSU system is documented below. MLML’s internal organization is displayed below that. MLML Director Jim Harvey reports directly to Dean Michael Parrish, College of Science, SJSU.



Director  
Jim Harvey

Faculty Chair Ivano Aiello	Nine Faculty Librarian Katie Lage Ten Faculty Researchers
Assistant to the Director Academic Program and Operations Kathleen Donahue	Information Technology Jeffrey Arlt, Rhett Frantz, Michael Radojevic Graduate Program Coordinator Terra Eggink Financial Management SJSU Jane Webster Financial Management SJSURF Michelle Keefe Environmental Health and Safety Jocelyn Douglas Scientific Diving Safety Officer Diana Steller Facilities Manager Gary Adams Facilities Technicians James Cochran, William Cochran, Kris Machado
Marine Operations Manager Captain Brian Ackerman	Small Boats Coordinator Captain John Douglas Deckhand/Technician Jackson Winn Administrative Assistant Kate Sawyers
Assistant to the Director Development, Strategic Planning Mike Prince	



In some respects MLML operates like a small University campus because it is located one hour south of SJSU, its administrative campus. This distance has required building an infrastructure that mimics many campus resources, such as a library, IT and facility services, health and safety officers, vehicles, and instrument technicians. As a marine laboratory, it also had to provide unique resources that a main campus does not provide: seawater system, diving program, and vessels. Thus the Director oversees an Assistant to the Director, who is responsible for managing daily operations of the laboratory, a Marine Operations Manager, an IT manager, and a person who assists with Development and Strategic Planning. The Director also works closely with the Chair of the department to assist with academic support.

### Governing Board

The MLML Governing Board (MLML GB) is comprised of faculty members and academic leaders from the seven CSU consortium campuses (A list of the Governing Board members is included in Appendix 4.). The MLML GB provides oversight, and sometimes approval of, various aspects of MLML activities. The MLML GB meets twice per year, in the Fall and Spring semesters, to discuss MLML’s academic program, budget, and operations.

Discussions held during the meetings in AY15-16 centered on the loss of the R/V Pt. Sur, student recruitment, the 50th Anniversary and changes to the bylaws. A committee was formed to make necessary changes to the bylaws and Rules of Operation for MLML. The changes include new language regarding the dissolution of MLML, as requested by the Chancellor’s Office (CO). The committee will provide its recommended changes to the documents by the Spring 2017 meeting and a motion will be made at that meeting to accept the amendments.

### Governing Board Meetings

The meeting highlights below document the issues and actions impacting MLML during AY15-16.

#### December 2015 Meeting Highlights:

- Four new staff and faculty members introduced including the new Physical Oceanographer and Graduate Program Coordinator.
- Recruitment underway for new faculty member to serve as the MLML Science Librarian.
- MLML’s Annual Report covering 2012-2015 for the Chancellor’s Office was reviewed and discussed.
- Report and updates on the Aquaculture Center facility.

- MLML’s 50th Anniversary plans.
- Curriculum and academic program reviewed along with discussion about launching online courses and reintroducing weekend courses.
- The continued discussion among SJSU, CSUMB, and the Chancellor’s Office regarding the future administrative campus of MLML. The assumption was that there has been a delay in decision-making until the new SJSU President Mary Papazian could be fully informed after her start in July 2016, that MLML and representatives of the consortium would be involved in the deliberations, and that a decision will be made this AY 2016/17.
- The lack of housing at MLML is greatly affecting the ability for consortium campus students to attend courses and for researchers to gain access to MLML resources.
- The loss of the R/V Point Sur has hampered class cruises, access to the ocean by consortium members, and decreased income generated by NSF contracts associated with operating the research vessel. MLML is interested in obtaining another research vessel and the Governing Board members were supportive of efforts to determine whether a new vessel would be appropriate.

#### May 2016 Meeting Highlights:

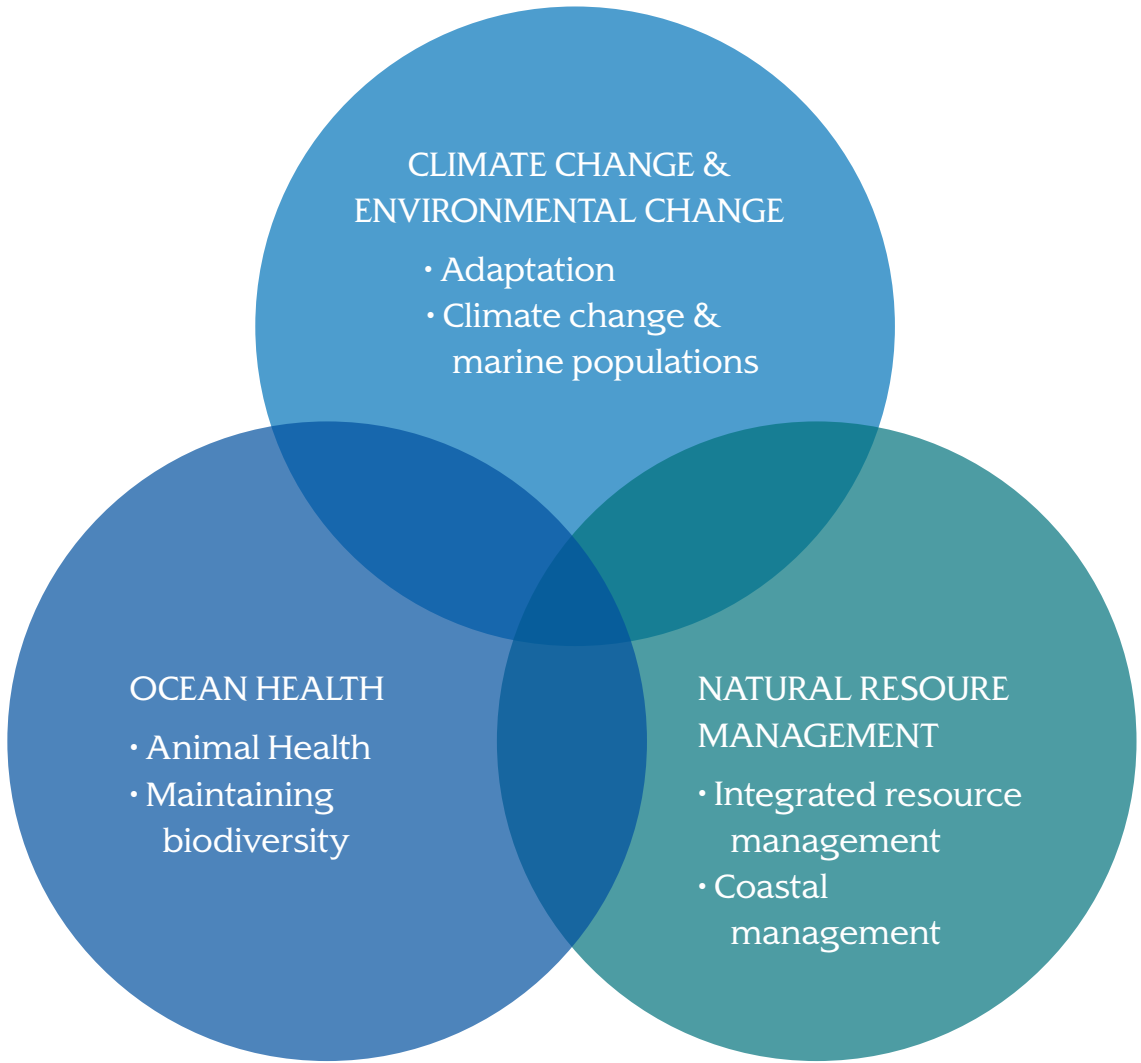
- New Science Librarian, Katie Lage from Univ. of CO has joined MLML’s faculty.
- Visiting Scientists for AY16-17 introduced: Dr. Michael Lee from CSU East Bay and new visiting scholar Dr. Patrick Gagnon from the Dept. of Ocean Sciences, Memorial University of Newfoundland.
- Development of a hybrid course in Oceanography emphasizing the environments of Monterey Bay would include online material combined with weekend field trips. Once the course has been developed it will be presented to the Governing Board for discussion and approval before going to each campus for formal approval by each campus.
- MLML also is developing a few weekend courses. One unit, 2-day experientially based courses in marine science at MLML. These will be available for undergraduates at the consortium campuses.
- MLML has produced a six-minute film that promotes the lab for prospective students and the general public.
- Discussion about increasing involvement from consortium campuses by giving talks, holding recruitment fairs, hosting weekend visits for potential graduate students.
- Online course in Oceanography demonstrated and discussed.
- Report on Aquaculture Center’s meeting sponsored by CSU COAST that brought together representatives from CSU campuses, private industry with local, state and national stakeholders.
- Changes to the By Laws. A committee was formed to make necessary changes to the By Laws and Rules of Operation for MLML. This will include new language regarding the dissolution of MLML, as requested by the CO. The committee will provide recommended changes to the documents by the Spring 2017 meeting, and hopefully will be approved at that time.





# MLML and Non-CSU Partners

MLML collaborates with other research institutions in Central California and with institutions around Monterey Bay. As it was established, the MLML consortium was only an association of CSU campuses, and there may be an addition of other CSU campuses. There have been discussions of developing a joint Ph.D. program with different UC campuses (i.e., UC Santa Cruz and UC Davis). The MLML By Laws do allow non-CSU partners: “In special cases, the MLML Governing Board may also recommend to the Consortium Presidents formal affiliations with institutions outside the CSU for the purpose of promoting the mission of MLML. Examples may include PhD granting universities, research institutions, or other non-commercial collaborative groups, government agencies, or consortia with shared goals and purposes.”





# Operations

MLML is a consortium representing seven CSU campuses: SJSU, CSU Monterey Bay, CSU East Bay, CSU Stanislaus, San Francisco State University, Fresno State, and Sacramento State. There have been discussions of developing a joint Ph.D. program with different UC campuses (i.e., UC Santa Cruz and UC Davis).

*For additional information, please see the Organization & Governance section on page 8.*

## Scientific Diving Program

The MLML diving program trains and supports our AAUS (American Academy of Underwater Sciences) divers to safely and productively conduct underwater research. The program has overseen an increasing number of research dives annually with student researchers conducting the majority of these dives. A team of these divers has contributed to the coastal California sampling by Reef Check California; a protocol that is taught in our research diving courses. The program strives to advance underwater research productively and safely.

## MLML/MBARI Research Library

Professor Joan Parker, long-time librarian at MLML, retired in December of 2015. Kathryn (Katie) Lage started as our new librarian on 1 July 2016.

The MLML/MBARI Research Library is a joint library shared with the Monterey Bay Aquarium Research Institute (MBARI). MLML’s public-private partnership with MBARI maximizes the resources of both institutions to create a world-class library that supports research and teaching in fisheries, marine birds and mammals, invertebrate zoology, oceanography, ecology, molecular biology, biogeochemistry, toxicology, marine geology, marine chemistry, and deep- sea biology. The library portfolio includes MLML’s Digital Commons, an institutional repository that provides access to Master’s Theses, publications by MLML-affiliated authors, institutional records, and an image archive. During the year, the MLML/MBARI Research Library joined a collaborative project led by the CSU Libraries and the Chancellor’s Office to create a Unified Library Management System (ULMS). This new collaborative library services platform will streamline back-end workflows as well as allow for easier discovery and access to our library resources, SJSU King Library resources, and CSU system-wide resources. Lage attended a ULMS training at King Library (a “vanguard library” in the system migration) and will continue to look to King Library for insights and collaboration opportunities.

In addition, SJSU’s Advancement team worked with the Friends of MLML to set up a crowdfunding page to raise money to replace the worn and tired furniture (which had been donated by a local jail 35 years earlier). The response from alumni and friends was overwhelming with almost \$15,000 raised over a two-month period. The upgrade created a more user-friendly, studios and beautiful

space to foster academic and research collaboration in the library, which now features scientific artwork highlighting MLML research.

## Marine Operations

Moss Landing Marine Laboratories Marine Operations continues to serve a wide variety of research efforts. MLML research vessels have assisted in tagging leatherback turtles off the Farallon Islands (Benson), deployed artificial kelp forests in Carmel Bay (Cunningham), conducted water quality assessments during the demolition of the San Francisco Bay Bridge (Cal-Trans), and measured CTD profiles at Cal American’s slant well in south Monterey Bay (AMS). We supported MLML grad students in data collections for their thesis work in the Elkhorn Slough and Monterey Bay and offered our resources to all our consortium campuses. In AY 2015-16:

- R/V John H Martin completed 45 cruises
- R/V Sheila B completed 17 cruises
- Whaler fleet completed 302 cruises

The future brings the possibility of exciting developments for Marine Operations. We are in preliminary talks with UCSD Scripps Institution of Oceanography (SIO) in a joint effort to replace the R/V Point Sur (MLML) and R/V Gordon Sproul (SIO) with a shared 49-m vessel that would serve the State of California. This vessel would be event responsive, able to lift and deploy heavier packages, support class cruises and multi-day operations, yet still be of a size that could be managed by a small crew. Preliminary surveys indicate that such a vessel may see as much as 190 days of use per year. We are also studying the feasibility of replacing the R/V John Martin with a somewhat larger, more capable ship of about 27 meters.

If MLML were able to acquire these bigger vessels, we would have to renovate the Del Mar wharf and surrounding property to accommodate berthing.





The acquisition of new ships and development of our facilities will better serve our students and the greater oceanographic community, and cement Moss Landing Marine Laboratories’ reputation as a premier research institution on the West Coast.

Museum and Digital Archive

The MLML Museum houses many specimens of birds, mammals, turtles, fishes, and invertebrates. In addition, it contains a herbarium collection of marine macrophyte (algae and plant) pressings. The collection contains at least 11,000 accessioned biological specimens, with ~75% housed in research collections and ~25% in teaching collections. This is a unique collection focusing on the biota of the Monterey Bay, collected during the last 50 years. It represents a thorough sampling of the flora and fauna of Monterey Bay and the larger sub-tropical and temperate northeast Pacific region (Baja California, California, Oregon, and Washington).

Recent improvements include; 1) reorganization of specimens, using compact storage units; 2) improving the care of specimens, including renewing preservation fluids and standardizing specimen storage containers; 3) updating of digital data files on the holdings; and 4) taking digital images of specimens.

The latest project is a collaboration with MLML Library and IT groups to utilize Darwin Core (a metadata standard for biological records) to make the MLML Museum collection available online via the MLML website. This searchable database will include links to photos and metadata, allowing scientists easy and complete access to the collection.

Proposal for a new Center For Aquaculture

MLML has proposed a new Center For Aquaculture, which we expect will serve the consortium, the CSU, and the entire state of California. After sponsoring a meeting in January 2016 of representatives from all 23 CSU campuses, state and federal agencies, industry, and other interested organizations, MLML officially applied to SJSU to form a new ORTU (Organized Research and Training Unit), called the Center For Aquaculture. After the Packard Foundation helped to construct the new Aquaculture building in 2015, MLML has been writing proposals and seeking support to greatly expand the infrastructure and capabilities of the facility. This year’s (2016/17) MLML Visiting Scientist, Michael Lee (CSU East Bay), will help develop partnerships and assist with the organization of a future curriculum and degree program in aquaculture. CA Sea Grant is hiring a new Extension Specialist who will reside at MLML and will be an aquaculture specialist enhancing the program.

Financials

MLML is supported by annual academic appropriations from SJSU, administered by the College of Science. The State support of MLML is completely funded via General Funds; all the tuition (student) fees are paid to the campus in which the student is enrolled. We supplement our operational costs with funds from the Facilities and Administration revenue (F&A) generated by our grants and contracts. The SJSU Research Foundation returns a portion of the F&A during the academic year, as such:

- 10% of our F&A goes to each Principal Investigator,
- 10% goes into a Reserve Account MLML set up for capital planning and for withstanding budget shortages,
- 10% goes into an account for repaying a loan to SJSURF (Resolution 198), and
- 70% remains to support research infrastructure.
- SJSURF also provides MLML with \$190k in supplemental funding to support research administration and facilities because MLML does not benefit from the existing campus support in San Jose.

Academic Year	# of Grants Awarded	Total \$ Awarded	F&A Generated	70% F&A Return for Ops
AY15-16	82	\$16,724,109	\$2,032,712	\$376,809
AY14-15	85	\$7,052,005	\$2,486,928	\$471,202
AY13-14	116	\$21,424,577	\$2,201,622	\$321,950

Between AY2013 and AY2016, MLML’s research operations and administration were typically supported with about \$500,000 to \$600,000 from the F&A generated by our grants. In the FY15-16 SJSURF returned an additional \$200,000, which was saved and rolled to FY16-17 to cover anticipated shortfall in F&A return expected in AY16-17.

Funding Source	2013-2014	2014-2015	2015-2016	2016-2017 (estimated)
Funding from SJSU CoS	\$3.4 mill	\$3.6 mill	\$3.6 mill	\$3.5 mill
SJSURF 70% of F&A Return	\$321,950	\$471,202	\$376,809	\$264,462
SJSURF Fac/Admin Support	\$188,064	\$196,416	\$189,011	\$190,000
*Revenue Income & Donations	\$564,827	\$540,852	\$745,740	tbd
TOTAL OPERATING BUDGET	\$4.1 mill	\$4.4 mill	\$4.9 mill	\$4.1 mill

\*MLML generates additional funding via donations through the Tower Foundation and income generated by instrumentation use fees, Sandholdt property rental, and Del Monte wharf rental



In addition to funding from the CSU, SJSU, and SJSURF, MLML relies on funding from private donors, corporate sponsors, and endowments that help fund scholarships for MLML students, facility improvements, and MLML outreach activities such as seminars, tours and displays for our Visitor Center. The Friends of Moss Landing Marine Labs (FoMLML) supports MLML development and outreach activities, with the funds being administered by the Tower Foundation at SJSU. In AY15-16, MLML received several large donations to support the 50th Anniversary celebration, the Library Upgrade, new scholarships were introduced from the Loury family and the Simpkins family made a generous donation to support the development of the proposed Center for Aquaculture.

Friends of MLML Donations AY 15-16  
\$630,715

San José State University – Operating Budget

The following table depicts the FY15-16 operating budget for MLML from SJSU, administered through the College of Science. The current \$3.4 million in State funding is derived from two sources; one via the CSU system-level support currently at \$1.6 million, and the second source from the administrative campus of SJSU that is \$1.8 million. MLML, like all the CSU campuses, had its OE&E support decreased in recent years, and MLML continues to operate at 33% less than the OE&E appropriated in FY2007/08. The last substantive increase in OE&E was in 2002. From 1966 to 1993, MLML was completely supported by funds from the CSU thus funding the consortium model with SJSU as the administrative campus. Since 1994, all faculty members at MLML with appointments at non-SJSU campuses have been transferred to SJSU, so that now all MLML faculty members have assignments with SJSU. This and other financial changes have created the split State funding model (i.e. CSU and SJSU) for MLML.

MLML Operating Budgets 2013-2016: SJSU				
	AY 13/14	AY 14/15	AY 15/16	AY 16/17
Salary	1,664,862	1,745,802	1,661,377	1,811,042
Benefits	709,078	780,317	790,783	770,000
OE&E	389,627	452,096	407,648	407,648
Utilities	283,771	204,310	248,463	248,463
Salary Recovery / Reimbursement	130,531	227,485	13,022	20,000
Visiting Scientist Support	0	21,429	21,425	21,425
Other Reimbursement/Support	83,531	8,785	3,874	5,000
CSUMB Contribution	50,000	50,000	50,000	50,000
Prior Year Balance Forward	107,842	18,136	216,043	166,917
Roll-Forward Encumbrances	27,515	86,081	140,436	TBD
TOTALS	3,446,757	3,594,440	3,553,071	3,500,495

For AY 15-16, the overall SJSU budget was slightly increased due to General Salary increases. The State budget covers the costs associated with salaries for faculty and staff, diving, instructional supplies, IT, library services, and facilities. MLML also remodeled a classroom which features moveable furniture, a 72” monitor on the wall, and short throw projectors; all well suited to both teaching and conferencing.

San José State University – Research Foundation

The following table depicts the operating budget supporting research at MLML. Income is generated from the return of some F&A allocations generated by research grant activity, rental property operated by MLML, and administrative support by SJSURF.

MLML SJSURF OPERATING BUDGETS 2013-2016				
REVENUE	AY 13-14	AY 14-15	AY15-16	AY16-17 est
Other Income	23,403	20,000	417.34	750
Rental Income (Del Mar, Sandholdt Center)	121,424	120,852	123,538	111,925
F&A Return (Less 30% to PI's, Reserve, Deficit Refinance)	321,950	471,202	376,809	264,462
Foundation Admin and Facility Support	188,084	196,416	189,011	190,000
Balance of Revenue To Fund Operations:	654,861	808,470	692,764	567,137
OPERATIONS DETAIL				
Total Salaries, Wages and Benefits	429,815	409,768	420,613	429,369
SJSURF Facility and Admin Staff - not from Grant Direct Costs				
Total Administrative Costs	22,320	37,074	22,812	25,000
Total Diving Costs	0	1,865	2,500	5,000
Total Information Technology	29,600	1,360	18,558	53,400
Total Maintenance and Repairs to SJSURF Properties		32,384	50,774	53,000
Del Mar, Norte, Aquaculture Center, Firehouse, Sandholdt				
Total Services & Facility Costs	86,639	29,200	67,557	72,000
Total Supplies & Equipment	20,860	53,903	10,309	11,500
Small Boat Support	15,000	15,000	15,000	15,000
Total Operating Costs:	604,234	580,554	608,123	664,269
				(97,132)
RESERVE	AY13-14	AY14-15	AY15-16	AY16-17 est
Reserve Account Balance By Year:	379,852	406,423	333,988	381,225
REFINANCING ACCOUNT				
Refinance Begin Balance	3,158,966	3,112,973	3,030,238	2,983,001



The research activity at MLML (including salaries for staff, equipment, IT, and maintenance) is largely supported from a portion of indirect costs in grants and contracts that are returned to MLML from the SJSURF (ave \$585,071/yr for past 13 years) and an administrative allotment (\$190,000/yr). These two sources of revenue total an average of \$775,071 annually that are required by MLML for research operations. This is made in part possible because the SJSU College of Science forgoes any F&A payments, enabling more of the F&A resources to be used by MLML.

SJSURF issued MLML an unplanned increase during FY15-16 as a result of cost savings in operations at SJSURF. MLML was originally planned to receive ~\$150,000. In July 2016, the SJSURF announced MLML would receive an additional \$180,000. Because MLML forecasted an extremely low F&A return for FY16-17, these funds were pushed to the following FY16-17 when the operating budget was showing a deficit of ~\$150,000.

MLML continues to struggle with variability in annual returns of F&A that are somewhat dependent on the F&A generated on SJSU campus. The uncertainty each year of the amount of F&A that will be returned to MLML has necessitated the build-up of a substantial reserve to cover MLML during years when less F&A is returned. These returned F&A funds pay the salaries for IT staff, financial analysts, maintenance staff, services, and maintenance of properties that all support MLML's \$15-\$20 million annual research activity.

Property

In addition to the MLML CSU facilities and land, the SJSURF holds title to six nearby properties that house Research Affiliates and funded programs. These properties are important entities to the current and future operations of MLML.

- One property is the 2.3-acre Shorelab that was purchased in 1965 and contains the pump house that delivers seawater to all classrooms and laboratories in the main lab and to MBARI. The new Aquaculture facility also occupies this site.
- The property housing Small Boats and Diving Operations (0.6 acres) was purchased in 1983. All 13 research vessels, maintenance shop, offices, and supplies for marine operations are at this location. Dive operations also are located here including compressors, dive cylinders, lockers, shower, office, and maintenance space supporting the dive program.
- Across the street from Marine Operations is the Norte Facility that is a 1.7-acre site purchased in 2000. This site houses mostly Research Faculty and Affiliates with offices and laboratories that generate about \$10 - 12 million in funding annually.
- The 9.2-acre Sandholdt property adjacent to the main MLML building was purchased in 2005, for the purposes of building housing and teaching/research space.
- The 1.6-acre Del Mar property was purchased in 2006 to provide dock space for the 135' R/V Point Sur. The vessel was sold in 2015, so we are discussing the long-range use of this site for a new vessel and additional research space.

Without some of these properties that provide seawater and vessel/dive support we could not function as a marine lab. The other properties are providing valuable income and research opportunities for our students or future space for housing that is desperately needed for future courses and involvement with consortium campuses.

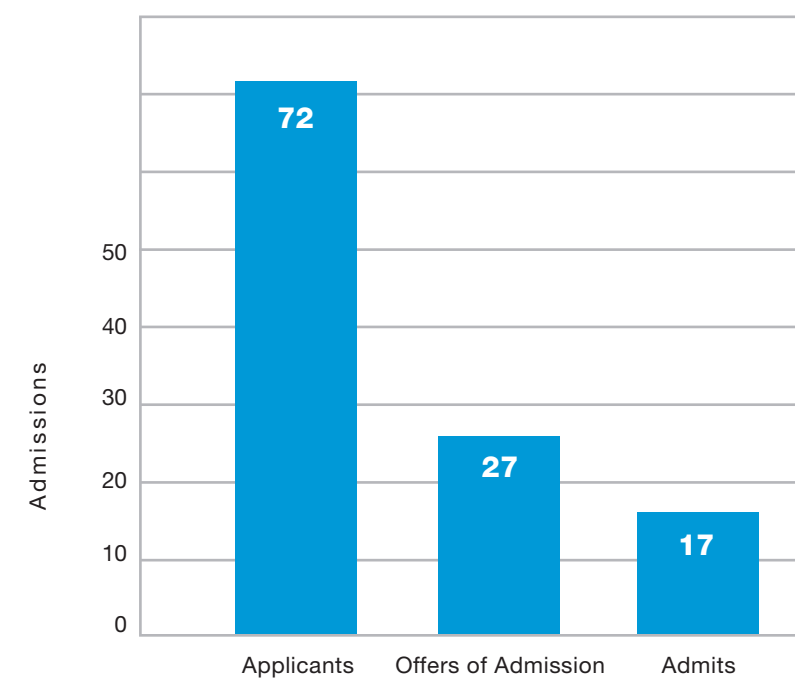




# Academics

MLML provides a world-class Master’s program in marine science. Although MLML has a full complement of undergraduate and graduate courses, the majority (87%) of the students attending MLML are graduate students in pursuit of their M.S. degree in marine science. The combination of broad-based courses, excellent facilities support, and heightened expectations have garnered MLML a reputation as one of the best Master’s program in marine science in the U.S.

## Admissions



The figure above indicates the number of graduate student applicants to MLML in AY15-16, the number of students offered entrance to the program, and the numbers that actually accepted the offer and were admitted.

The difference between the numbers offered and admitted is because MLML competes with R-1 institutions that provide healthy stipends for incoming students, thus some students choose to matriculate where there is better funding.

# Enrollment (depicts actual Headcount)

AY15-16 Enrollment (Headcount)			
CSU Campus	Undergraduates	Graduate Students	Total Enrolled
East Bay	0	0	0
Fresno	0	0	0
Monterey	3	41	44
Sacramento	0	0	0
San Francisco	0	3	3
San José	7	30	37
Stanislaus	0	0	0
Totals:	10	71	81
Number of Masters in Marine Science degrees awarded: 12			

## SJSU Annual Program Assessment

This year’s Annual Program Assessment efforts focused on Program Learning Outcome (PLO) 1 (1a & 1b).

**PLO 1a:** Demonstrate an understanding of fundamental concepts in a particular category of oceanography and marine science

**PLO 1b:** Be able to synthesize and integrate across all of these fields, yet achieve a depth of understanding in the student’s individual specialty or field of study (MLML specialties include Physical Oceanography, Biological Oceanography, Chemical Oceanography, Geological Oceanography, Marine Phycology, Marine Ichthyology, Marine Turtle, Bird and Mammal Ecology, and Marine Invertebrate Zoology.)

We tracked enrollment numbers in the courses that assess PLO 1a and 1b and were offered during academic year 2015-16, and the pass/fail rate of those courses, in order to evaluate if enrolled students gained proficiency as described in the PLOs. We also tracked student success in the written thesis and oral defense during the academic year 2015/16, because PLO 1a and 1b also address skills that would be mastered at the culmination of the degree program. Analysis indicated a 100% pass rate of the courses in question, indicating sufficient mastery of the curricula that maps to PLO 1a and 1b, and a 100% success rate in the written thesis and oral defense, indicating that all students demonstrated an understanding of fundamental concepts in a particular category of oceanography and marine science (PLO 1a), the ability to synthesize and integrate across all of these fields, and achieve a depth of understanding in the student’s individual specialty or field (PLO 1b).



## Program Improvements

MLML leadership continues to look for ways to improve the academic program and curriculum, including the introduction of a new Aquaculture degree or certificate and a mandatory two-semester first year blended course. In the near-term, the following two concepts are being evaluated.

### Blended Class Concept

The “blended” class concept is being considered by the MLML faculty. This core course would be two semesters long and give all new students a basic understanding of marine science; incorporating physical, chemical, biological and geological oceanography, along with all the biological disciplines (Invertebrate, Vertebrate, Phycology/Ecology, Ichthyology) into a concept-driven course. The new students would concurrently take data analysis, statistics, programming, and science writing classes the first year. By the end of their first year, they also would write their thesis proposal.

### Distance Learning Course

Faculty at MLML, under the supervision of Chair Aiello are developing a hybrid, online and ‘in person’ class called “Oceanography in the Monterey Bay”. The main goal of this course is to provide exposure to the features, processes, and many issues affecting the global oceans and our local environment with specific examples from the Monterey Bay and central California. Although the delivery format will be mostly online, it will also include in-person meetings and a field trip to Moss Landing Marine Labs. Our faculty members are developing the content for several of the modules.

This class will acquaint students with the knowledge and skills necessary to satisfy the General Education (GE) graduation portion requirements for non-science majors. A detailed syllabus has been created that defines 11 main topics/modules that cover all physical, chemical, and biological components of the ocean system. The syllabus was shared with the MLML Governing Board during the Spring 2016 meeting.



## Faculty

### Definitions

The term **Regular Faculty**, as used in the MLML Rules of Operation 3.1 refers to tenure/tenure-track faculty members as defined by the CFA bargaining agreement. **Research Faculty** refers to those persons who have demonstrated a commitment to the education and research goals of MLML. Further, Research Faculty are those researchers who are in residence at MLML, hold a Ph.D. degree, serve as Principal Investigators (PIs) on grants and can be appointed as lecturers, and are permitted to serve on student thesis committees.

The term **Research Affiliates** refers to researchers that are generally in residence at MLML, generally hold a Ph.D. or a M.S. degree, most can serve as PIs on grants, but typically do not mentor students or teach courses. Research Affiliates can serve on thesis committees if they have a Ph.D. degree.

There are nine tenure-track faculty members, ten research faculty members, and twelve Research Affiliates that serve as the primary educational and research staff at MLML. All RTP processes are conducted through SJSU. MLML is designated as an Equivalent Unit to a Department, thus a waiver was required for MLML to obtain a Chair. The Chair (Dr. Ivano Aiello) attends the SJSU College of Science Council of Chairs meetings and is responsible for the academic program at MLML (e.g. courses taught, faculty assignments, TA positions, instructional support).

### Evaluation

The MLML faculty members are evaluated by the RTP Committee at MLML, the Chair of MLML, the RTP Committee of the SJSU College of Science, Dean of College of Science, University RTP Committee, and finally the Provost of SJSU. Although there are a few standing committees (e.g. RTP, Curriculum, Diving Control Board, and Boats) most of the decision-making regarding policies, hires, planning, etc. is conducted in meetings of the entire faculty and a representative from the Research Faculty/Affiliates and a representative from the students.

### Accomplishments

MLML faculty, faculty researchers, and research affiliates acquired **90 grants and awards totaling \$16.7 million** during AY15-16. These funds are administered by the San José State University Research Foundation (SJSURF). Please see Appendix 1 for details on the grants awarded. Please see Appendix 2 for the extensive list of this year’s faculty publications.





## Director

### JIM HARVEY, Director

- Dr. Harvey serves on numerous Federal, State, and local committees: COAST – Executive Committee, CA Sea Grant – Advisory Board, NOAA – Pacific Scientific Review Group, NOAA – Pacific Cetacean Take Reduction Team, Humboldt State University Marine Lab – Advisory Board, Elkhorn Slough National Estuarine Research Reserve – Reserve Advisory Panel, The Marine Mammal Center – Scientific Advisory, San José State University Research Foundation – Board of Directors.
- Conducted research on harbor seal distribution and foraging, leatherback turtle foraging ecology, humpback and blue whale diving and foraging.
- Current and Pending Grants: \$11,586,496

## Faculty (9)

### IVANO AIELLO, Professor of Geological Oceanography

- Selected to sail as shipboard scientist on the Integrated Ocean Discovery Expedition 363 “West Pacific Warm Pool”: Singapore to Guam (10-4 to 12-4, 2016);
- Christina Ravelo and Dr. Aiello convened a session at the AGU meeting in SF (Fall 2015) on: Interplay between tectonics, oceanography, hydro-thermal circulation and microbial processes in the Gulf of California.
- Pete Raimondi and Dr. Aiello convened a session at the Ocean Sciences meeting in New Orleans: Exploring biological-geological interactions in coastal and nearshore habitats.
- Dr. Aiello organized a workshop in Puerto Vallarta Mexico (11/6 to 11/9): Exploring deep subsurface life, sedimentation and tectonics in a young ocean: Workshop to synthesize site survey cruise data and develop new strategies for a scientific ocean drilling proposal in the Guaymas Basin. For this Dr. Aiello obtained a grant from IODP - USIO (\$22,100, 9/15 to 9/16).
- Current and Pending Grants: \$85,302

### KENNETH COALE, Professor of Chemical Oceanography

- Dr. Coale Presented at the American Geophysical Union and at the American Chemical Society
- Courses taught: Chemical Oceanography, Biogeochemical Cycling of Trace Metals and nutrients in the Coastal Zone, Marine Instrumentation and Fabrication
- Current and Pending Grants: \$189,683



#### **TOM CONNOLLY, Professor of Physical Oceanography**

- Dr. Connolly is the lead Principle Investigator for NSF-funded project on wave-current interaction, and MLML subcontract for NOAA-funded Central and Northern California Ocean Observing System (with MBARI and other institutions).
- Dr. Connolly presented research at two international conferences, American Geophysical Union Fall Meeting in San Francisco and American Geophysical Union/Association for the Society of Limnology and Oceanography Ocean Sciences Meeting in New Orleans.
- He is also a mentor for Monterey Bay Research Experiences for Undergraduates program (Miranda Baker, Haverford College).
- Current and Pending Grants: \$125,628

#### **JON GELLER, Professor of Invertebrate Zoology**

- 370 marine species discovered on beached debris from the 2011 Tohoku tsunami
- DNA barcoding research presented at the International Marine Bioinvasions Conference, Sydney, Australia
- Invasion research and training of Ecuadorian scientists in the Galapagos Islands
- MLML graduate students participated in biodiversity genetic research in the Northern Hawaiian Islands and Indonesia
- Current and Pending Grants: \$1,947,715 and \$378,632

#### **MICHAEL GRAHAM, Professor of Marine Ecology**

- Workshop on developing a CSU (proposed) Center For Aquaculture
- Processing center for study of effects of Fukushima disaster on radiation levels in seaweed
- Re-elected to 5-year contract as editor and managing office for Journal of Phycology
- Current and Pending Grants: \$507,230

#### **SCOTT HAMILTON, Professor of Ichthyology**

- Continuing studies investigating the effects of climate change (ocean acidification and hypoxia) on various aspects of the ecology and physiology of rockfish. Work includes studies of the impacts of multiple stressors on behavior, physiology, and gene expression in juvenile rockfish and effects on reproduction, embryo development, and larval quality in rockfish and other groundfishes. Funding from NSF, CA Sea Grant, NOAA, and SJSU has supported this work. The collaborative research involves students and faculty from MLML, CSU Monterey Bay, UC Santa Cruz, and NOAA Fisheries.
- Dr. Hamilton initiated two projects, both funded by programs at NOAA, to study life history and demographic variation in important groundfish species (lingcod and canary rockfish) and to provide the necessary data to help improve the stock assessments and ultimately the fisheries management of both species. The collaborative research involves students from MLML and CSU Monterey Bay and colleagues from NOAA Fisheries.
- Current and Pending Grants: \$1,357,654

#### **KATIE LAGE, Librarian**

- Kathryn (Katie) Lage joined the MLML faculty as the new Librarian on July 1, 2016. She comes to MLML from the University of Colorado Boulder, where she was head of an interdisciplinary, specialized library supporting research and teaching in the earth and environmental sciences. Lage is happy to be back in the CSU system after receiving her Master of Library Science from San José State University in 2002.
- Research interests: the challenges and opportunities that digital geospatial library materials present for organization and retrieval. Current research focuses on the curation of research data in geohumanities scholarship and in the Sciences.
- Presented on this research at the Association of American Geographers (AAG) in Chicago.

#### **GITTE MCDONALD, Professor of Vertebrate Ecology**

- Dr. McDonald and her collaborators from Aarhus University, St. Andrews University, and University of La Laguna have been awarded an Office of Naval Research grant to study heart rate in deep diving cetaceans.
- Alison Stimpert, Gitte McDonald, and colleagues from Marine Mammal Commission and the University of St. Andrews co-organized a workshop on Career/Life Balance in Marine Mammal Science held in conjunction with the Marine Mammal Society Biennial Conference in December.
- Current and Pending Grants: \$55,599 and \$118,081

#### **NICK WELSCHMEYER, Professor of Biological Oceanography**

- Award of Merit, distinguished faculty mentor for Brian Maurer in CSU Student Research Competition, 2013.
- Dr. Welschmeyer's Students:
  - Karen Parker, M.S., Molecular Consultant, (Co-Founder, Chrysopylae, Inc.), Los Altos, CA. (MLML Thesis: 1st place, Outstanding Master's Thesis Award, Science and Engineering, San Jose State University, 2014).
  - Brian Maurer, M.S., Water Systems Specialist, Monterey Bay Aquarium, Monterey, CA. MLML Thesis: 1st place CSU-wide competition for best graduate research in biological sciences, 2013.
- Current and Pending Grants: \$785,100 and \$440,000

#### **Emeritus Faculty (2)**

##### **GREG CAILLIET – Professor Emeritus, Ichthyology**

Co-Director, Pacific Shark Research Center (PSRC); & Associate Director, Friends of Moss Landing Marine Laboratories (FoMLML)

- Dr. Cailliet is revising his part of the book Fishes: A Laboratory and Field Guide through Waveland Press, that he first co-authored in 1985, with Milton Love, Lara Ferry, and Scott Hamilton.
- He gave two keynote addresses in 2015 at the Symposium on Elasmobranchs for the Fishery Society of the British Isles in Plymouth, England; and the Symposium on fish feeding habits ("Gutshops") at the American Fisheries Society meetings in Portland Oregon. Both keynote addresses resulted in manuscripts for publication.



### MIKE FOSTER – Professor Emeritus, Phycology

- Dr. Foster published his co-authored book, *The Biology and Ecology of Giant Kelp Forests* with University of California Press. The book received a PROSE Award from the Association of American Publishers, and excellent reviews in a number of journals, including *Ecology*.
- Dr. Foster also has a consulting contract with NOAA/CFW to assist with damage assessment related to the Refugio Oil Spill. In addition, he has consulting contract with the Central Coast Regional Water Quality Control Board to help assess the thermal impacts of the Diablo Canyon Nuclear Power Plant.

## RESEARCH FACULTY (10)

### LARRY BREAKER, Oceanography

- Dr. Larry Breaker was invited to give a seminar at Scripps on his experience with 30 years of data from the Shore Stations Program in October 2016.
- Dr. Breaker also published a paper in *La Tecnica* sponsored by the University of Manabi Province on sea surface temperature variability off the coast of Ecuador in December 2015 (first author), and published a paper entitled “Trends in sea surface temperature off the coast of Ecuador from 1900 to 2015” in the *Journal of Marine Systems* in September 2016 (first author).

### COLLEEN DURKIN, Biological Oceanography

- Field work collecting sinking marine particles and phytoplankton: two, 5-day cruise at the New England Shelf Break (collaboration with scientists at University of Rhode Island and Skidmore College) and two day-cruises in Monterey Bay (collaboration with scientists at MBARI). Analysis of samples is ongoing at MLML.
- Communication, Publication, Education: Publication of 3 first-author studies, submission of two second-author manuscripts. Three research proposals, and two pre-proposals, were written and submitted by Dr. Durkin (NSF, NASA, CA-SeaGrant). Dr. Durkin also gave two invited seminars (at MBARI and MLML) and delivered two guest lectures to MLML graduate students (Data Analysis and Biological Oceanography). Mentored CSUMB-REU undergraduate student, who designed and performed an independent research project in the Durkin lab.
- Service: Invited participation and contribution to NSF sponsored “Biology of the Biological Pump” workshop to identify priorities for future research supported by NSF-OCE division. Nominated and appointed as committee member of the Association for the Sciences of Limnology and Oceanography (ASLO) Online Media Library.

### DAVID EBERT, Pacific Shark Research Center

- A total of 13 books published or currently in press.
- A total of 49 publications, with PSRC students authoring 28 publications.
- PSRC students attended 9 conferences and presented 35 papers.

### STACY KIM, Benthic Ecology

- Graduate students (2):
  - Clint Collins completed his MS Thesis, *Natural and Anthropogenic Disturbance in McMurdo Sound, Antarctica: Iceberg Scours, Human-Derived Pollutants, and their Effects on Benthic Communities*. Clint is now employed as the Diving Safety and Logistics Officer at University of Hawaii.
  - Laughlin Barker started in a Ph.D. program in Underwater Robotics and Engineering at Johns Hopkins University.
- Current and Pending Grants: \$662,530

### VALERIE LOEB – Biological Oceanographer

- October-November 2015 conducted the third and final field effort in an NSF-funded pilot study that adds net sampling and underwater video recording to supply transits of the U.S. Antarctic Program vessel, ARSV “L.M. Gould” to establish the identity, concentrations and biomass of zooplankton and nekton acoustics targets recorded by coincidental Acoustic Doppler Current Profiling (ADCP) and relate these to physical structuring imposed by the strong frontal jets of the Antarctic Circumpolar Current (ACC)
- May 2016 prepared and submitted a grant proposal to NSF Polar Programs entitled “Drake Passage-Antarctic Peninsula Ecosystem Research (DAPPER)” requesting 3 years of support to continue the research initiated during the Drake Passage Pilot Study
- Current and Pending Grants: \$171,991

### ILIANA RUIZ-COOLEY, Evolutionary Ecology, Marine Mammals and Turtles

- NSF, Biological Oceanography. The effect of warming on elemental cycling and trophodynamics in the Eastern Tropical Pacific. PI. R. I. Ruiz-Cooley, Submitted, 08/2016
- IMS Packard OST Endowment Proposal. Domoic acid in marine food webs: a novel approach to trace nitrogen sources and transfer. PI: Clarissa Anderson, Co-PI (Ruiz-Cooley); \$ 20,000; 2016
- NSF, Chemical Oceanography. Domoic acid in marine food webs: a novel approach to trace nitrogen sources and transfer. PI: Ruiz-Cooley, Co-PIs: C. Anderson, and R. Kudela
- Current and Pending Grants: \$390,374

### JASON SMITH, Environmental Biotechnology

- Awarded grant from Gordon and Betty Moore Foundation to develop technologies for genetic transformation tools for the toxic diatoms *Pseudo-nitzschia australis* and *P. multiseriata* (10/15)
- April Woods completed her masters’ thesis describing the association of photooxidative stress tolerance in the production of domoic acid by diatoms in the genus *Pseudo-nitzschia* (5/16)
- The National Alliance for Coastal Technologies program, with MLML-EBL serving as the Pacific Coast partner and testing laboratory was funded for an additional five years by NOAA-NCCOS-IOOS. ACT is one of the longest (15 yrs) extramurally funded programs by NOAA
- Current and Pending Grants: \$1,382,400 and \$97,271



**RICK STARR, Fisheries and Conservation Biology**

- Finished 10th year of Marine Protected Area monitoring with volunteer anglers. We published the first information showing that MPAs in central California work to increase densities and sizes of fishes, relative to adjacent reference sites
- Worked with National Marine Fisheries and Ca Dept. Fish and Game scientists to evaluate the effects of a 10-year long fishery closure.
- Developed a stereo-video camera system to survey commercially important fishes in deep rocky habitats
- Current and Pending Grants: \$420,773

**DIANA STELLER, Phycology**

- Mentored graduate student Angela Zepp who recently was awarded the \$6,000 NOGI / Zale Parry diving scholarship for her research on demography and pH variation in the acid weed *Desmarestia ligulata* and her research diving leadership.
- Taught field based research diving and techniques courses. These included teaching Marine Science Diving (August and Fall semester 2015) and co-teaching Marine Environmental Studies of the Gulf of California (Spring 2016).
- Conducting international collaborative research on understanding the foraging ecology of the endangered Hawksbill sea turtles (*Eretmochelys imbricata*) in Mexico.

**ALISON STIMPERT, Vertebrate Ecology**

- In collaboration with NOAA, measuring the effects of anthropogenic sound on rockfish in southern California.
- In collaboration with MBARI, recording the soundscape of Monterey Bay from a bottom-mounted, cabled hydrophone.
- Developing methods for quantifying response of calling baleen whales to Navy sonar.
- Current and Pending Grants: \$94,969

**RESEARCH AFFILIATES (12)**

**SCOTT BENSON – Southwest Fisheries Science Center - Marine Turtle Research Program (SWFSC)**

- Received funding for a 2-year study to assess leatherback turtles off the U.S. West Coast in a changing climate.
- Active Level IV responder for the NOAA Whale Entanglement team to rescue whales tangled in fishing nets and line on the Central coast of CA.

**JOSEPH BIZARRO – Ichthyologist**

- Postdoctoral fellow with the National Marine Fisheries in Santa Cruz, CA
- Continuing his research in Aquatic and Fisheries Science and is a consultant on essential fish habitats
- Worked as a GIS Analyst, research ecologist and staff scientist for the Pacific Shark Research Center and Center for Habitat Studies at MLML.

**ROSS CLARK – Central Coast Wetlands Group (CCWG)**

- Led the 2016 EPA National Wetland Assessment effort for California
- Initiated a comprehensive Moro Cojo Slough planning, monitoring and modeling effort.
- Led a Monterey and Santa Cruz County Coastal Climate Change Hazard assessment effort
- Current and Pending Grants: \$1,828,141 and \$858,673

**CURT COLLINS – Climate Change, Remote Sensing and Oceanography**

- Emeritus Professor at CSUMB, Department of Oceanography and at the Naval Postgraduate School
- Continues his research using remote sensing devices to understand the effects of climate change
- Began collaboration with the Physical Oceanography Lab and Dr. Connolly to submit proposal to NSF

**RUSTY FAIREY – Marine Pollution Studies Lab (MPSL)**

- Implementation of a long term monitoring program for mercury in the San Francisco Bay Delta.
- Managing and evaluating environmental data collected in response to the BP oil spill on the Gulf Coast
- Led the CA field survey for EPA’s 2015 National Coastal Condition Assessment
- Led the field survey for a new monitoring program along the bay margins for the SF Bay Regional Monitoring Program
- Current and Pending Grants: \$2,947,715

**WES HEIM – Marine Pollution Studies Lab (MPSL)**

- Implementation of a long term monitoring program for mercury in the San Francisco Bay Delta.
- Development of a working mercury model of the San Francisco Bay Delta and Yolo Bypass.
- Completion of a 4-year project focused on management practices to minimize production and export of organic mercury from agricultural and non-agricultural lands.
- Current and Pending Grants: \$5,594,481 and \$16,923



### KIM NULL – Chemical Oceanography

- Received funding from Anthropocene Institute to purchase water quality monitoring equipment to monitor the Moro Cojo slough.
- Mentor for the Research Experience for Undergraduates (REU), summer 2016.
- Participation in the nutrient co-operative advisory committee for central California.
- Current and Pending Grants: \$756,264 pending

### TIM STANTON – Naval Postgraduate School, Research Professor, Oceanography Department

- Completion of a 4 year project focused on management practices to minimize production and export of organic mercury from agricultural and non-agricultural lands.
- Dr. Stanton has maintained a NSF and ONR sponsored Ocean Turbulence research group at NPS for the last 30+ years, with annual funding between \$500K and \$1M / year for the last two decades. At MLML, he has a \$100K ONR proposal being routed through the system for the Stratified Arctic Oceans DRI for FY17.
- Developing plans to participate in student projects with Dr. Tom Connelly and other MLML colleagues during 2017. Research will focus on instrument development, data analysis and ocean waves and turbulence.

### QING WANG – Naval Postgraduate School

- Lead and participated in three field campaigns for air-sea interaction measurements, including the Coupled air-Sea Processes and EM ducting Research (CASPER), Coastal EO PropagaTion eXperiment (CEOPTeX), and Coastal Land-Air-Sea Interaction (CLASI) projects;
- Led a team of students, postdocs, and engineers on extensive data analyses of model and observational data;
- Organized special issues in conferences and workshops

### MARK YARBROUGH – Marine Optical Buoy Project (MOBY)

- Continued MOBY operations at the Lanai, Hawaii mooring site, providing calibration/validation data in support of Ocean Color science.
- Delivery of two new Carbon Fiber buoy structures for the MOBYNet project.
- Continued production of four fiber optic spectroradiometers for MOBYNet and production of two MOBYNet power and data acquisition control systems.
- Current and Pending Grants: \$12,399,007

### JENIFER ZELIGS – Science and Learning With the Help of Sea Lions (SLEWTHS)

- Built a new deck and pool for El Nino sea lion pups that we adopted who were deemed unreleasable after repeated restrandings and health issues. This is part of a larger problem of unusual massive stranding events in California that SLEWTHS is contributing expertise in the handling of the event.
- Began an investigation into the calibration of accelerometer usage for determining foraging events in sea lions with Gitte McDonald, MLML faculty and another investigation with Westchester University into swimming mechanics.



## Student Accomplishments

### Introduction

In AY15-16, MLML had 81 students enrolled primarily from SJSU and CSUMB with several that came from SFSU. Seventy-one were graduate students and 10 were undergraduates. Twelve students graduated with an M.S. degree. Of those twelve, two have enrolled in Ph.D. programs, two are now employed by state and federal agencies, one is working for a non-governmental organization (NGO), and three are employed as staff at MLML.

### AY 2015-2016 GRADUATES

#### Hamilton “Will” Fennie

“Early Life History Traits Influence the Effects of Ocean Acidification on the Behavior and Physiology of Juvenile Rockfishes in Central California”

Faculty Advisor: Hamilton

#### Sara Worden

“Effects of Small-Scale Substrate Complexity and Heterogeneity on Rocky Intertidal Species Interactions”

Faculty Advisor: Graham

#### Kristin Meagher Robinson

“Motile Cryptofaunal Invertebrate Assemblages in Catalina Island’s Rhodolite Beds in Relation to Physical Structure and Live Rhodoliths”

Faculty Advisor: Geller



Gabi Navas

“Geographic Variation in the Life History and Morphology of The Pacific Geoduck, Panacea Generosa”  
Faculty Advisor: Hamilton

Clint Collins

“Natural and Anthropogenic Disturbance in McMurado Sound, Antarctica: Iceberg Scours, Human-Derived Pollutants, and their effects on Benthic Communities”  
Faculty Advisor: Aiello and Kim

Vera Lawson

“Tracking Icebergs and Sea Ice in the Mid-Pleistocene Bering Sea Suggests Sea Ice Affects Ice Sheet Growth”  
Faculty Advisor: Aiello

Ryan Fields

“Spatial and Temporal Variation in Rosy Rockfish (*Sebastes rosaceus*) Life History Traits”  
Faculty Advisor: Hamilton

Emily Donham

“Effects of Global Change on Algal Biomineralization and Benthic Community Interactions on California’s Temperate Rocky Reefs”  
Faculty Advisor: Hamilton

Stephen Loiacono

“Effects of Substrate Warming on Sessile Marine Invertebrate Communities in Monterey Bay, California”  
Faculty Advisor: Geller

Melinda Tanner

“A Sedimentological Analysis of the Siliciclastic Fraction in Pliocene Core Sediments from Bowers Ridge, Bering Sea (IODP EXP 323)”  
Faculty Advisor: Aiello

April Woods

“Cellular Stress Physiology in the diatom *Pseudo-nitzschia* and its role in Domoic Acid production”  
Faculty Advisor: Welschmeyer and Smith

Pamela Neeb Wade

“Effects of Non-Native Species on Two Life Stages of the Olympia oyster, *Ostrea lurida*, in the Elkhorn Slough Estuary”  
Faculty Advisor: Geller

Open House

MLML students continued their successful outreach activities by planning and hosting the MLML Annual Open House. Every year MLML students open MLML’s doors and invite the public to come and explore the labs. The event is free and aimed at all ages. This long treasured event allows the community, families, and educators to visit MLML, interact with our students and researchers, tour the facilities, explore our labs and participate in interactive activities geared towards marine science and our local ecology. MLML’s Student Body constructs invertebrate touch tank displays, holds a raffle to earn scholarship funds, presents a sea lion show, and performs a marine-themed puppet show, which has become legendary. Other activities include a bake sale to help fund student research, marine-themed arts and crafts, and tours of our research vessels. The 2015 Open House had more than 1,800 visitors and netted more than \$4,000 for the Student Body Scholarships.

The Student Body also sold homemade lunches during the 50th Anniversary weekend and raised \$2,000 for the MLML Student Body Treasury.





Scholarships and Awards

AY 15-16 : 25 Awards  
\$20,500

John H. Martin Scholarship

Heather Fulton-Bennett

Xiphias Martin Scholarship

Maureen (Mo) Wise

James Nybakken Scholarship

Pamela Neeb Wade

Sonia Linnik Hamilton  
Marine Science Scholarship

Jen Chiu

Signe Lundstrum Memorial Scholarship

Steven Perez-Cunningham

Loury Family Marine Science  
Outreach Scholarship

Laurel Lam

Simpkins Family  
Marine Science Scholarships

Stephanie Schneider  
Devona Yates  
Maureen (Mo) Wise  
Scott Miller

MLML Scholar Awards

Stephen Pang  
Mason Cole

MLML Wave Awards

June Shrestha  
Bonnie Brown  
Holly Chiswell  
Stephan Bitterwolf  
Jessica Jang  
Emily Schmeltzer  
Kristin Walovich

Dr. Earl and Ethel M. Myers  
Oceanographic and Marine  
Biology Trust Grants

Stephan Bitterwolf  
Mason Cole  
Lindsay Cooper  
Cody Dawson  
Heather Fulton-Bennett  
Jinchen (Martin) Guo  
Jessica Jang  
Alex Olson  
Angela Zepp



FRIENDS OF MOSS LANDING  
MARINE LABORATORIES

Friends of MLML

The Friends of Moss Landing Marine Laboratories (FoMLML) was established in 1994 as a 501c(3) non-profit organization to support research, education and conservation at MLML. Although the 501c(3) has been dissolved, the organization continues to provide support and organization for the MLML alumni and current students through donations and philanthropic giving. These funds are held and administered at the SJSU Tower Foundation. The FoMLML plays a critical role in gathering community support for the facility, funding scholarships for graduate student support, undertaking special projects to enhance the MLML Visitor Center, and operating numerous public outreach programs for the local community. In AY15-16, FoMLML received \$630,715 in private donations, endowments and corporate contributions from alumni, the Anthropocene Institute, the Simpkins family, and the Packard Foundation.

Library Upgrade

To raise funds for upgrading the MLML/MBARI Research Library, SJSU's Advancement team launched a crowdfunding campaign. The library's furniture had been donated by a local jail 35 years ago, and was shabby and broken. A short video was produced and then posted on SJSU's crowdfunding page. FoMLML experienced a tremendous response from alumni and donors, and almost \$15,000 was raised to purchase new furniture and chairs.

50th Anniversary Book

FoMLML also assisted the 50th Anniversary Planning Committee with fundraising efforts to raise money to publish a book commemorating 50 years of excellence in marine science research and education. Almost \$24,000 was raised with donations coming from the alumni, the Monterey Bay National Marine Sanctuary, the Acacia Foundation, the Moss Landing Harbor District, MBARI, and Save The Earth.

Friends of MLML Outreach Activities

The Wave Magazine

FoMLML produces the Wave magazine, which highlights MLML research activity and student success, and provides updates to sponsors and donors. The AY15-16 edition focused on MLML's 50th Anniversary.



Public Lecture Series

A free public lecture was presented by one of our Oceanographic Technicians, Jason Adelaars about some of the lab’s current research, “Stand Back! We Are Doing Science!”

Lab Tours

During AY 15-16, FoMLML student tour guides conducted more than 25 tours for local K-12 classes, science summer camps, home schoolers, and other youth organizations. Our tour guides provided education about the ecology of the local coast, wetlands, redwoods, and native plants found along the shore. Visitors get to walk through labs, participate in hands-on activities, hike along the slough, learn about the Monterey Bay Submarine Canyon, and learn what it takes to be a marine scientist!

Seminar Room

In addition to these outreach and fund raising activities, FoMLML coordinated the use of MLML’s Seminar Room. MLML provides its Seminar Room free of charge to marine research organizations throughout the Monterey Bay area and California and allows other non-profit groups to use the space at a discounted rate. In AY15-16, FoMLML coordinated 48 events and meetings in the MLML Seminar Room for groups like CSUMB, PBS, the BBC, the Monterey Bay Aquarium, NOAA, CA Fish and Wildlife, US Dept. of Agriculture, CSU Stanislaus, Canada College, local NBC station KSBW, and for nonprofits like the American Red Cross, North Monterey County Fire District and local school districts. MLML even leant the Seminar Room, lobby and Martin’s Point of View to York High School in Monterey, CA for its senior prom.



50th Anniversary

MLML held its first classes in 1966 at a converted cannery building that had been occupied by a private marine laboratory (Beaudette Foundation). Since 1966 MLML has grown into a major marine laboratory with an international reputation. More than 650 students have graduated with a Master’s degree. More than \$400 million has been generated in contracts and grants during its history. To celebrate the 50th Anniversary of MLML a series of events was held, with the help of San José State University.

- **4 August:** MLML hosted a media day for ten representatives from the local print and TV media, which produced four stories about MLML, including a cover story on the new MLML Aquaculture Facility in the Silicon Valley Business Journal on August 16. (see Appendix 3)
- **5 August:** An evening reception for more than 100 dignitaries overlooking Monterey Bay provided an opportunity for elected officials (Congressman Sam Farr and Assemblymen Mark Stone and Bill Monning), CSU Administrators (CSU Assistant Vice Chancellor for Research, Ganesh Raman, SJSU President Mary Papazian and CSU Monterey Bay President Eduardo Ochoa), leaders of local marine institutions (CEO of MBARI Chris Scholin), and California Secretary of Natural Resources John Laird to celebrate MLML’s history. The festivities included the presentation of a Congressional Order of Honor of the 114th U.S. Congress by Congressman Farr, and a California State Assembly Resolution by Assemblyman Mark Stone.
- **6 and 7 August:** More than 450 former and current MLML students, staff, and faculty gathered for two days of pictures, reminiscing, and celebrations. More than half of the 650 MLML alumni attended, a truly amazing testimony to their connection with their alma mater.





## Looking Forward

### Strategic Plan

According to a letter dated 18 December 2015 from Assistant Vice Chancellor for Research, Zed Mason and Executive Vice Chancellor for Academic and Student Affairs, Loren Blanchard (CO), MLML was conditionally authorized to continue operations under EO 1103 until 6 May 2016 based on an original Annual Report and an addendum. The conditional status was based on the fact that there was no approved Strategic Plan for MLML. Given that an appropriate and comprehensive

Strategic Plan could not be developed by 6 May 2016, MLML and SJSU requested a greater amount of time to develop such a plan. A letter dated 25 April 2016 to Dr. Sue Martin (interim SJSU President) from Loren Blanchard approved the request thus a Strategic Plan was to be developed and delivered to the CO by 31 July 2017. Below is our schedule for developing a Strategic Plan and securing the proper approval before it will be sent to the CO. We have had a few faculty meetings and one MLML faculty retreat to start the development of a strategic plan.

Schedule for Developing a Strategic Plan for MLML																
	2016								2017							
	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J
Faculty Discussions																
First Draft																
Faculty Review																
Second Draft																
SJSU Review																
Third Draft																
SJSU Approval																
Governing Board Approval																
Final Draft																
Delivery to CO																

### Academic Program

The primary objectives of the MLML Academic Program are to decrease the time until graduation with a M.S., broaden the number and diversity of students in courses and receiving our content, and strengthen student understanding of ocean issues and their scientific capabilities. We have

recently decreased the time until graduation using a combination of greater oversight and mentoring. Future plans are to make curricular changes that would reduce the course burdens and to develop curriculum that accelerates the thesis development process (e.g. proposal writing, improved writing skills, and better analytical skills).

The development of a GE-based hybrid course that would allow much greater participation by students within the consortium would greatly increase the number and diversity of the students we serve. Most of the students taking courses at MLML are graduate students in the M.S. marine science program. By offering hybrid (online/field) courses we expect undergraduates, in particular, will be attracted to the MLML curriculum. Because the consortium campuses have much greater numbers of under-represented groups in the sciences, we can attract a greater diversity of students into the program.

We have been trying recently to provide courses that are more integrated regarding the different disciplines of marine science. The applied nature of some course material, the multidisciplinary integration, and the broadening of content should strengthen student understanding of ocean issues and their ability to practice science.

### Research

Much of the success of MLML regarding research activity is because there are a number of affiliated researchers. In the effort to grow research capacity at MLML we continue to add soft-money researchers to the program. These personnel bring added expertise benefitting the students and faculty, and they bring in substantial amounts of research dollars (approximately \$9.4 million annually).

In the past year or so we have added six new Research Affiliates:

- Dr. Qing Wang (Meteorologist at Naval Postgraduate School). She studies environmental effects of electromagnetic wave propagation, air-sea interactions, and boundary layer processes.
- Dr. Iliana Ruiz-Cooley studies trophic dynamics, and environmental habitat mapping using stable isotopes.
- Dr. Tim Stanton (Physical Oceanographer at the Naval Postgraduate School in Monterey, CA. He studies turbulent boundary layers, ocean/ice interactions in polar regions, and wave and sediment dynamics.
- Dr. Joe Bizzarro (Ichthyologist with National Marine Fisheries Service). He studies abundance, distribution, age, growth, and foraging ecology of elasmobranchs.
- Dr. Coleen Durkin is a biological oceanographer who studies the vertical export of particles, phytoplankton physiology, and environmental genetics.
- Dr. Kim Null studies nutrient cycling and dynamics in coastal and groundwater systems throughout the globe.



Faculty

The MLML/SJSU faculty has been very active in their research pursuits. All of the faculty members are fully funded and conducting research projects throughout the world. (The figure below depicts research location for MLML scientists in 2015/16). Three of the nine faculty members are new this past year, but we do have a couple of faculty that are getting closer to retirement, so the faculty at some point will need to discuss the future of the faculty composition.



Proposal for a new Center For Aquaculture

We expect to greatly expand our vision of the proposed Center For Aquaculture in the coming years. We have a proposal for a new ORTU that is in its final stages of approval at SJSU, we have a course in aquaculture that will be taught in Spring 2017, and we will be hiring a new California Sea Grant Extension Specialist that will be a Research Faculty member at MLML and a specialist in aquaculture. This person will help develop new courses in aquaculture science, will help bring in new sources of funding, and will help mentor students as they obtain a M.S, degree in marine science with a concentration in aquaculture. We are currently progressing on obtaining new sources of funding for the Center, and to further outfit the new building funded by Packard Foundation with instrumentation.

Facilities

This coming year we have funding and donations that will expand the number of seawater tanks at the aquaculture facility. New plumbing and electrical installations will provide more resources for the expanding users of the aquaculture facility. In anticipation of a new research vessel arriving in the future, MLML is starting to make improvements to the Del Mar property that is the large wharf owned by MLML/SJSURF in the Moss Landing harbor. This space is in need of repairs, and the first step is demolition of the existing structure and placement of new pilings. MLML is developing a site plan for the Sandholdt property next to the main building of MLML that would provide additional housing, conference space, and research labs. With NSF funding we completed a survey of potential users and investigated what could be constructed on the site. Now we need to move into developing a business plan and specific site plan with architectural drawings before we start fund raising for the project.

Housing

Housing continues to be the most important impediment to further growth in education and research at MLML. An immense concern for MLML students is how to fund personal costs (e.g. housing food, tuition). The Central Coast of CA is currently one of the most expensive places to live in the U.S (median rent in Santa Cruz County is over \$2000/month for a 1-bedroom apartment). Most other marine labs in the country have some form of housing to provide accommodations for weekend courses, summer courses, visiting scholars, and meetings. Without housing MLML will remain largely a graduate program with a limited amount of space for undergraduate students. The plans for development, as outlined above in the Facilities section, will allow us to expand and meet our objectives of greatly expanding our capabilities for undergraduate education, especially under-represented students, in marine science.

Visitor Center

One of the requirements of our permit to build the main building at MLML after the 1989 Loma Prieta earthquake was to provide a Visitor Center. We have had limited funds to meet this requirement, and have slowly started to imagine aspects of the Center. With some recent donations we have installed a museum-style kiosk in the entry way that has a slide show of images. Eventually, and with enough funding, we hope to install some interactive displays that allow visitors to virtually explore our labs, the Monterey Bay, surrounding wetlands and redwoods and learn more about local wildlife. A display such as this would invite potential graduate students to virtually explore our Master in Science program, learn more about the faculty and research, and watch videos showing students in the field, interviews with alumni and current student sharing their MLML experiences.





Development-Fundraising

University Advancement at SJSU has recently announced that they will provide personnel and support for a fundraising campaign for MLML designed to raise funds for four themes (in no particular order):

- **Academic Village:** (housing, research labs, conference center) at the Sandholdt property next to the main lab. This much needed expansion will allow us to offer more courses, provide housing for summer and weekend courses, and will allow us to develop our concept of a conference center around the notion of Sustainable Ocean Science (SOS).
- **New Research Vessel:** With the sale of the NSF-owned R/V Point Sur, MLML has lost most of the capability for class cruises, larger research expeditions, supporting science for regional scientists, and an icon and symbol of MLML to the rest of the oceanographic world. We hope to purchase and operate (possibly in partnership with UCSD and Scripps Institution of Oceanography) a regional class vessel possible of 95 – 120’ in length. Our vision is that this vessel would serve the CSU throughout the State allowing classes and researchers access to a world-class research platform. We also propose this vessel would be used to address issues of concern for California, including climate change, sea level rise, ocean acidification, coastal erosion, and monitoring marine protected areas.
- **Proposal for a new Center For Aquaculture:** We maintain that one burgeoning field in California will be aquaculture, which in many ways is directly related to marine science and the CSU. The CSU is considered a leader in workforce development, and we believe MLML and the CSU could be a leader in development of a more robust, sustainable, and profitable aquaculture enterprise. MLML organized a meeting of all the CSUs with federal/state agencies, industry, and others this past year. We plan to lead the way in the development of training for the aquaculture industry, provide leadership in developing sustainable methods and sound science-based paths, and to provide sound advice to policy makers regarding permitting and regulations. We view this as a critical contribution to the economy of California, while providing research and job opportunities for our students. This will be a CSU-wide endeavor.
- **Student Success:** The success of the students at MLML is largely determined by the amount of financial support we can provide. Graduate students need resources for vessels, diving, instrumentation and supplies for their research. MLML does not have the financial resources to support 75-85 graduate students (which is the current level), let alone to expand the graduate program or develop a robust undergraduate program. We propose to start a fundraising campaign for an endowment that would allow financial support for students in perpetuity.





# Appendix 1: MLML Grants & Awards

MLML faculty, faculty researchers and research affiliates acquired 90 grants and awards totaling \$16.7 million during AY15-16. These funds are administered by the San José State University Research Foundation (SJSURF).

## FACULTY: (57 grants) \$4.7 million

- Elkhorn Slough Restoration
- Characterizing Sub-Sea Floor Life and Environments in the Guaymas Basin
- Development of Best Management Practices To Reduce Methyl Mercury Exports and Concentrations From Seasonal Wetlands
- In Situ Sampling of Thermodynamics and Fog
- Collaborative Research: Investigations on Cycling of Mercury from the Ocean to Fog and Deposition to Land in Coastal CA
- Along-shelf Transport and Cross-shelf Exchange Driven by Surface Waves on the Inner Continental Shelf
- Japanese Tsunami Marine Debris (JTMD) and Alien Species Invasions PICES Year 2: Continued Interception, Acquisition
- Development of a Strategic Plan for Aquaculture Research and Education at the California State University
- Using Habitat-Specific, Spatial Demographic Information to Improve Stock Assessments of Ground Fishes
- 2015 East Bay Bridge Demolition Fish Surveys – ESA
- Effects of Climate Change Induced Ocean Acidification and Hypoxia on Reproduction of Rockfishes
- Water Pollution Control Lab, Rancho Cordova CA: Alaska Dept. of Fish and Game, City of Santa Cruz, CA, Karuk Tribe, New Mexico Dept. of Game and Fish, CA Dept. of Fish and Wildlife, Sonoma County Environmental Health Dept., Morro Bay Foundation, Yurok Tribe (water quality monitoring, sampling and analysis)
- Refugio Beach: National Resource Damage Assessment
- Elkgrove Dry Well Project
- BeachCombers Project
- Central and Northern Coast Ocean Observatory System (CeNCOOS)
- Office of Naval Research AGOR Support
- Enhanced Stranding Response (partnership with UC Santa Cruz)
- Estuarine Wetland and Near Shore Ecology Studies
- Shipboard Ballast Water Treatment Tests: Aquatic Invasive Species and Ballast Water Management

## RESEARCH FACULTY: (8 grants) \$692,621

- Alliance for Coastal Technologies (ACT): National Scale Efforts Towards Verification and Validation of Observation Technologies
- Monitoring and Assessments of CA’s Marine Protected Areas
- Fisheries: Species Distribution Models, Data Collection Methods, Stock Assessment and Management
- Southern CA Behavioral Response Study on the Effects of Naval Sonar on Marine Mammals

## RESEARCH AFFILIATES: (25 grants) \$11.3 million:

- Marine Pollution Studies Lab (MPSL) received grants to provide ongoing analytical services to the CA State Water Resources Control Board
- Surface Water Ambient Monitoring Program (SWAMP) is funded for continued bioassessments and data management
- Marine Optical Buoy (MOBY) Operations, Technology Development and Instrument Compatibility for Calibration with Ocean Color Satellites
- Central Coast Wetlands Group received a grant to develop guidance for management of estuaries in CA.
- Mercury and Methylmercury Sampling and Analysis



Appendix 2: MLML Publications AY15-16

Please note MLML Researcher names in bold.

TOTAL NUMBER OF PUBLICATIONS: 155

Adams, J., W.A. Walker, E.J. Burton, and **J.T. Harvey**. 2015. Stomach contents of a Cuvier’s beaked whale (*Ziphius cavirostris*) stranded in Monterey Bay, California. Northwest Nat. 96:93-98.

Aguilera, S.E., J. Cole, E.M. Finkbeiner, E. Le Cornu, N.C. Ban, M.H. Carr, J.E. Cinner, L.B. Crowder, S. Gelcich, C.C. Hicks, J.N. Kittinger, R. Martone, D. Malone, C. Pomeroy, **R.M. Starr**, S. Seram, R. Zuercher, K. Broad. 2015. Managing small-scale commercial fisheries for adaptive capacity: Insights from dynamic social-ecological drivers of change in Monterey Bay. PLoS ONE 10(3): e0118992. doi:10.1371/journal.pone.0118992

**Aiello, I.W.**, 2016, The Miocene hydrocarbon migration system: seep carbonates in the Santa Cruz area, California. In: Outcrops that change the way we practice petroleum geology, 100th Anniversary of the AAPG (in print).

**I.W. Aiello**, 2015, Elkhorn Slough TMRP: surface and subsurface properties and settlement potential at Minhoto and Hester Marsh. Elkhorn Slough National Estuarine Research Reserve. 15 pages.

**Alappattu, D. P., Q. Wang**, and J. A Kalogiros, 2016, Anomalous Propagation Conditions over Eastern Pacific Ocean Derived from MAGIC Data, Radio Science, 50, doi:10.1002/2016RS005994.

**Denny P. Alappattu** and **Qing Wang**, 2015: Correction of Depth Bias in Upper-Ocean Temperature and Salinity Profiling Measurements from Airborne Expendable Probes. J. Atmos. Oceanic Technol., 32, 247–255., doi: http://dx.doi.org/10.1175/JTECH-D-14-00114.1.

Arranz, P, DeRuiter, SL, **Stimpert, AK**, Neves, S, Friedlaender, AS, Goldbogen, JA, Visser, F, Calambokidis, J, Southall, BL, and Tyack, PL. In press. Discrimination of fast click series produced by tagged Risso’s dolphins (Grampus griseus) for echolocation or communication. Journal of Experimental Biology.

Ashton, G. V., Davidson, I. C., **Geller, J.**, Ruiz, G. M. (2016). Disentangling the biogeography of ship biofouling: barnacles in the Northeast Pacific. Global Ecology and Biogeography. 25(6), 739-750

Ashton, G. V., Davidson, I. C., **Geller, J.**, Ruiz, G. M. (2016). Disentangling the biogeography of ship biofouling: barnacles in the Northeast Pacific. Global Ecology and Biogeography. 25(6), 739-750

Aspillaga, E., F. Bartumeus, C. Linares, **R.M. Starr**, À. López-Sanz, D. Díaz, M. Zabala, B. Hereu. 2016. Ordinary and extraordinary movement behaviour of small resident fish within a Mediterranean Marine Protected Area. PLoS ONE 11(7): e0159813. doi:10.1371/journal.pone.0159813

**Barnes, C.L., R.M. Starr**, and P.N. Reilly. 2015. Growth, mortality, and reproductive seasonality of California halibut (Paralichthys Californicus): a biogeographic approach. California Cooperative Oceanic Fisheries Investigations. Vol. 56, 2015.

**Benson, S.R.**, R.F. Tapilatu, N. Pilcher, P. Santidrián Tomillo, L. Sarti Martinez. 2015. Leatherback turtle populations in the Pacific. In: Spotila, J. and Santidrián Tomillo, P. (Eds.), The Leatherback Turtle: Biology and Conservation. The Johns Hopkins University Press.

**Bigman, J.S., Knuckey, J.D.S., & Ebert, D.A.** 2016. Color aberrations in Chondrichthyan fishes: first records in the genus Bathyraja (Chondrichthyes: Rajiformes: Arhynchobatidae). Marine Biodiversity, 46(3): 579-587.

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Bradie, J., M. Veldhuis, A. Curto, P. Stehouwer, **N. Welschmeyer**, L. Younan, S. Bailey, K. Broeg, S Heitmuller, M. Rolke, C. Gianoli, J. He, A. Nakata, L. Schillak, A. Zaake, J. Vanden Byllaardt, 2016. A shipboard comparison of analytic devices for ballast water compliance monitoring. *Journal of Sea Research (Netherlands, submitted, special ballast water issue).*

**Breaker:** Paper in La Tecnica sponsored by the University of Manabi Province on sea surface temperature variability off the coast of Ecuador in December 2015 (first author), and (3), published a paper entitled “Trends in sea surface temperature off the coast of Ecuador from 1900 to 2015” in the Journal of Marine Systems in September 2016 (first author).

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White, J.W., K.J. Nickols, D. Malone, M. H. Carr, **R. M. Starr**, F. Cordoleani, M. L. Baskett, A. Hastings, L. W. Botsford. 2016. Fitting state-space integral projection models to size-structured time series data to estimate unknown parameters. *Ecological Applications*. doi: 10.1002/eap.1398

Wright, D.A., **N.A. Welschmeyer** and L. Peperzak. 2015. Alternative, indirect measures of ballast water treatment efficacy during a shipboard trial: a case study. *Journal of Marine Engineering and Technology*, 14: 1-8.

Wright, D. and **N. Welschmeyer**. 2015. Establishing benchmarks in compliance assessment for the ballast water management convention by port state control. *Journal of Marine Engineering and Technology*, 14: 9-18.

Yano & Tanaka 1984 (Squaliformes: Somniosidae) from the western North Pacific, with comments on the definition of somniosid genera. *Ichthyological Research*, 62: 213-229.



## Appendix 3: Media Highlights

### Media Highlights 2015-2016

Moss Landing Marine Labs has always had a productive and positive relationship with local media, nature journalists and wildlife programs, both national and international. MLML is a regular stop for The Discovery Channel and has been the focus of Shark Week episodes for almost a decade. Local news channels for ABC, NBC and CBS make regular visits to the lab to talk about current research, student activities or to interview our researchers about emergent ocean science events and issues. MLML tries to maintain an active social media profile and has a very popular Facebook page:

<https://www.facebook.com/mosslandingmarinelabs/>

In AY15-16, MLML's Pacific Science Research Center headed by Dr. Dave Ebert was again featured on The Discovery Channel's Shark Week, we contributed specimens and subject matter expertise to the joint BBC/PBS three-day, live broadcast "Big Blue Live" that aired over Labor Day in 2015 and the Media Open House held in August 2016 for our 50th Anniversary yielded coverage on stations throughout the Central Coast and San Francisco Bay Area, including the cover of the Silicon Valley Business Journal in August 2016, featuring the (proposed) Center For Aquaculture.

Additional media included:

- 50th Anniversary Coverage
  - <http://abc7news.com/science/moss-landing-marine-labs-focused-on-research--/1457832/>
  - <http://www.kionrightnow.com/news/local-news/moss-landing-marine-laboratories-turns-50/41060820>
  - <http://www.kionrightnow.com/news/local-news/local-marine-lab-celebrates-50-year-anniversary/41060778>
  - [http://www.bizjournals.com/sanjose/news/2016/08/18/from-lagoon-to-spoon-aquaculture-gets-a-boost.html?surround=etf&ana=e\\_article&u=ZmXAzlMKB%2B%2FT9smpTd6kEA0cbc9aad&t=1471975101&j=75524962](http://www.bizjournals.com/sanjose/news/2016/08/18/from-lagoon-to-spoon-aquaculture-gets-a-boost.html?surround=etf&ana=e_article&u=ZmXAzlMKB%2B%2FT9smpTd6kEA0cbc9aad&t=1471975101&j=75524962)
- White House blog on inter-agency cooperation to develop capacities for nutrient monitoring and mitigation. Dr. G. Jason Smith, MLML research faculty is the Pacific-Coast technical Coordinator for the Alliance for Coastal Technologies (ACT)
  - <https://www.whitehouse.gov/blog/2016/08/03/improving-nutrient-management-and-reducing-pollution-through-open-innovation-prizes>
- Dr. Kenneth Coale was interviewed and featured in several publications, articles and news stories about his research looking at levels of mercury found in the fog along the Northern and Central CA coast.
  - <http://www.santacruzsentinel.com/article/NE/20151225/NEWS/151229822>
  - <http://www.ecowatch.com/mercury-laden-fog-swirls-over-california-coastal-cities-1882143694.html>

- <http://www.popsoci.com/mercury-observed-in-coastal-fog-off-california>
- <http://www.mercurynews.com/2016/01/04/marins-heavy-coastal-fog-could-be-carrying-mercury-into-ecosystem/>
- MLML featured in the Los Angeles Times Daily News Magazine as part of a cover story on Cal State University.
  - <http://ladailynews.travidia.com/SS/Tiles.aspx>
- Oakland Bay Bridge Demolition, October 2015: The MLML team from Dr. Rick Starr's CA Collaborative Fisheries Research Program (CCRP) lab was featured in several San Francisco Bay Area news broadcasts and publications. The team spent Halloween weekend in 2015 monitoring the waters surrounding the demolition site to track fish mortalities.
  - <http://www.sfgate.com/bayarea/article/Bay-Bridge-demolition-set-for-early-Saturday-6632160.php>
- The (proposed) Center For Aquaculture and Professor Michael Graham of the Phycology Lab were featured in local newspapers throughout the year (Santa Cruz Sentinel, Monterey County Weekly) and was selected by the Chancellor's Office to be "In The Spotlight" of the CSU News website.
  - <http://www.santacruzsentinel.com/science/20160127/aquaculture-the-next-great-monterey-county-frontier>
  - <http://news.calstate.edu/csu-collaboration-to-strengthen-california-aquaculture/>
  - [http://www.montereycountyweekly.com/news/cover/monterey-bay-seaweeds-brings-seaweed-superpowers-to-plates/article\\_0424d1f2-38ac-11e6-8959-4f8fd23ed8ee.html](http://www.montereycountyweekly.com/news/cover/monterey-bay-seaweeds-brings-seaweed-superpowers-to-plates/article_0424d1f2-38ac-11e6-8959-4f8fd23ed8ee.html)
- AY2015-2016 saw a tremendous increase in marine mammal activity throughout the Monterey Bay. Dr. Jim Harvey was interviewed by local NBC, CBS and ABC affiliates as well as news publications as an expert on whales, orcas and the effects of El Nino on the Monterey Bay ecosystem.
  - <http://www.santacruzsentinel.com/20160419/high-number-of-killer-whales-spotted-in-monterey-bay>
  - <http://www.kionrightnow.com/news/local-news/dead-whale-of-west-cliff-may-be-the-result-of-more-orcas-in-the-monterey-bay/39366164>
- Whale Disentanglements: MLML's Scott Benson and Captain JD Douglas are Level IV responders for NOAA's Whale Entanglement Team (WET). They performed numerous disentanglements of humpback, blue and gray whales throughout the year and were recognized by NOAA in press releases issued internationally and picked up by major news outlets in several countries.
  - <http://www.santacruzsentinel.com/environment-and-nature/20160422/monterey-bay-humpback-whale-freed-while-orcas-feed-froli>
  - <http://www.cawhalerescue.org/news/2016/5/11/california-whale-rescue-responders-disentangle-humpback-whale-off-carmel-coast>



- Great White Sharks: the coastline between Capitola and Manresa State Beaches in the Monterey Bay has experienced a tremendous increase in Great White Sharks over the last 2 years. MLML's Dr. Dave Ebert and his students served as a subject matter expert several times throughout the year for local and national news broadcasts and publications.
  - <http://www.kionrightnow.com/news/local-news/what-to-do-if-you-encounter-shark-while-kayaking/35450810>
  - <http://www.kionrightnow.com/news/local-news/group-of-great-white-sharks-spotted-at-seacliff-beach-in-aptos/39602028>
  - [http://www.nbcbayarea.com/news/local/Great-White-Sharks-Spotted-in-Santa-Cruz-384005641.html?\\_osource=SocialFlowFB\\_BAYBrand](http://www.nbcbayarea.com/news/local/Great-White-Sharks-Spotted-in-Santa-Cruz-384005641.html?_osource=SocialFlowFB_BAYBrand)
- KION TV, local CBS affiliate featured MLML during a Special Report in May 2016 on the town of Moss Landing: “An Inside Look At Moss Landing Marine Labs” interviewing Professor Emeritus Dr. Greg Cailliet about the history and mission of MLML
  - <http://www.kionrightnow.com/news/local-news/inside-look-moss-landing-marine-labs/39637580#.Vz6dFantc8>
- The Salinas Californian selected the Friends of MLML as their non-profit of the month: “The Spirit of Moss Landing”
  - <http://www.thecalifornian.com/story/life/2016/07/07/friends-and-spirit-moss-landing/86782292/>
- Ross Clark of the Central Coast Wetlands Group (CCWG) continued publishing his regular column in the Santa Cruz Sentinel “Earth Matters”
  - <http://www.santacruzsentinel.com/environment-and-nature/20160630/ross-clark-earth-matters-changing-the-rules-as-climate-changes-too>

MLML Film

MLML commissioned an alumnus and a local filmmaker to make a short film that could be used to recruit new students, donors and research partners. The film also needed to describe and illustrate the complexity of the lab’s organizations to local, regional and State officials, stakeholders and representatives within the CSU seeking to understand who we are and what we do; a daunting mission to undertake in only 6-8 minutes.

Footage was donated by MBARI, wildlife photographers, and underwater filmmakers. Footage was captured of our students in the field and classroom, interviews were videotaped, a narration track was recorded, and maps were woven in to bring context to the Monterey Bay area.

The resulting film has been viewed by the MLML Governing Board, the MLML community, alumni, and guests at the 50th Anniversary VIP reception. Audience reactions have been positive, although faculty and advisors within the CSU system requested more footage of students, particularly showing where they ended up after graduation, and more details on locales in the world where MLML employees are conducting research.

Appendix 4: Governing Board Members



MLML Governing Board Members  
May 2016

Board of Governors		
CALIFORNIA STATE UNIVERSITY, EAST BAY 25800 Carlos Bee Ave. Hayward, CA 94542	Members	Alternates
Biological Sciences	Dr. James Murray Biology Tel: (925) 788-0557 james.murray@csueastbay.edu	Dr. Tyler Evans Biology Tel: (510) 885-3475 tyler.evans@csueastbay.edu
	<b>Chair:</b> Dr. Michael D. Lee Anthro Geo & Env Stud (AGES) MLML Coast/CSU Aquaculture Tel: (510) 885-3155 michael.lee@csueastbay.edu	
Administration	Dr. Jason Singley Dean, College of Science Tel: (510) 885-3441 jason.singley@csueastbay.edu	
CALIFORNIA STATE UNIVERSITY, FRESNO 5241 N. Maple Ave Fresno, CA 93740	Members	Alternates
Biological Sciences	(C) Dr. Alejandro Calderon-Urrea Biology Tel: (559) 278-2001 calalea@csufresno.edu	Dr. Paul Crosbie Biology Tel: (559) 278-4244 pcrosbie@csufresno.edu
Physical Sciences	<b>Vice Chair:</b> Mathieu Richaud Earth & Environmental Sciences Tel: (559) 278-4557 mathieu@csufresno.edu	
Administration		



Board of Governors		
CALIFORNIA STATE UNIVERSITY, MONTEREY BAY 100 Campus Center Seaside, CA 93955-8011		
	Members	Alternates
Marine Sciences	Dr. James Lindholm Science & Environmental Policy Tel: (831) 582-4662 jlindholm@csumb.edu	Dr. Rikk Kvitek Science & Environmental Policy Tel: (831) 582-3529 rkvitek@csumb.edu
Physical Sciences		Dr. Sharon Anderson Science & Environmental Policy Tel: (831) 582-3915 shanderson@csumb.edu
Administration	Dr. Andrew Lawson Dean, College of Science alawson@csumb.edu	
CALIFORNIA STATE UNIVERSITY, SACRAMENTO 6000 J St. Sacramento, CA 95819		
	Members	Alternates
Biological Sciences	Dr. Bill Avery Biology Tel: (916) 278-6279 averyw@csus.edu	Dr. Ron Coleman Biology Tel: (916) 278-3474 rcoleman@csus.edu
Administration	Rose Castillo Assistant to the Dean, Natural Sciences & Mathematics Tel: (916) 278-7670 rcastill@csus.edu	Dr. Amy Wagner Assistant Professor Geology Dept. Tel: (916) 278-5136 Amy.wagner@csus.edu
SAN FRANCISCO STATE UNIVERSITY 1600 Holloway Ave. San Francisco, CA 94132		
	Members	Alternates
Biological Sciences	Dr. Jonathon Stillman Romberg Tiburon Center Tel: (415) 338-3790 stillmaj@sfsu.edu	Dr. Sarah Cohen Romberg Tiburon Center Tel: (415) 338-3750 sarahcoh@sfsu.edu
Physical Sciences	Dr. Tomoko Komada Romberg Tiburon Center Tel: (415) 338-3748 tkomada@sfsu.edu	ALT TBD
Administration	Dr. Keith Bowman College of Science & Engineering Tel: (415) 338-1571 kjbowman@sfsu.edu	Dr. Karina Nielsen Romberg Tiburon Center (415) 338-3713 knielson@sfsu.edu

Board of Governors		
SAN JOSE STATE UNIVERSITY One Washington Square San Jose, CA 95192		
	Members	Alternates
Biological Sciences	Dr. Shannon Bros-Seeman Biology Tel: (408) 924-4896 Shannon.Bros@sjsu.edu	
Physical Sciences	Dr. Manny Gabet Geology Tel: 408-924-5035 manny.gabet@sjsu.edu	Dr. June Oberdorfer Geology Tel: (408) 924-5026 june@geosun.sjsu.edu
Administration	Dr. Pam Stacks Associate Vice President (ex officio), Research Tel: (408) 924-2488 Pamela.Stacks@sjsu.edu	
	Dr. Michael Parrish Dean, College of Science Tel: (408) 924-4800 Michael.Parrish@sjsu.edu	Dr. Gilles Muller Assoc. Dean, Research Tel: (408) 924-2632 Gilles.muller@sjsu.edu
CC on all Gov Board Comms:	Andy Feinstein Provost SJSU Andy.feinstein@sjsu.edu	Sandeep Muju Director SJSU Research Foundation Sandeep.muju@sjsu.edu
CALIFORNIA STATE UNIVERSITY, STANISLAUS 801 W. Monte Vista Ave. Turlock, CA 95382		
	Members	Alternates
Biological Sciences	Dr. Patrick Kelly Biological Sciences Tel: (209) 667-3446 pkelly@csustan.edu	Dr. Ritin Bhaduri Biological Sciences (209) 667-3485 rbhaduri@csustan.edu
Physical Sciences	Dr. Horacio Ferriz Physics, Physical Sciences & Geology Tel: (209) 667-3466 hferriz@geology.csustan.edu	Dr. Julia Sankey Physics, Physical Sciences & Geology Tel: (209) 667-3090 julia@geology.csustan.edu
Administration	Dr. Mark Grobner Interim Dean, College of Natural Sciences Tel: (209) 667-3153 mgrobner@csustan.edu	



Board of Governors		
MOSS LANDING MARINE LABORATORIES 8272 Moss Landing Rd. Moss Landing, CA 95039	Members	Alternates
Marine Sciences	Dr. Mike Graham Phycology Tel: (831) 771-4481 mgraham@mlml.calstate.edu	Dr. Scott Hamilton Ichthyology Tel: (831) 771-4497 shamilton@mlml.calstate.edu
	Dr. Nick Welschmeyer Biological Oceanography Tel: (831) 771-4439 welschmeyer@mlml.calstate.edu	Dr. Ivano Aiello Geological Oceanography Tel: (831) 771-4480 iaiello@mlml.calstate.edu
Administration	Dr. Jim Harvey Director Tel: (831) 771-4402 iharvey@mlml.calstate.edu	Kathleen Donahue Assistant to Director Tel: (831) 771-4405 kdonahue@mlml.calstate.edu

Appendix 5  
EO 1103 – CSU Response March 2016

SJSU

SAN JOSÉ STATE UNIVERSITY

Susan W. Martin, Ph.D.  
Interim President

San José State University  
One Washington Square  
San José, CA 95192-0002


TEL: 408-924-1177  
FAX: 408-924-1199  
sjsupres@sjsu.edu

The California State University:  
Chancellor's Office  
Bakersfield  
Channel Islands  
Chico  
Dominguez Hills  
East Bay  
Fresno  
Fullerton  
Humboldt  
Long Beach  
Los Angeles  
Maritime Academy  
Monterey Bay  
Northridge  
Pomona  
Sacramento  
San Bernardino  
San Diego  
San Francisco  
San José  
San Luis Obispo  
San Marcos  
Sonoma  
Stanislaus

March 24, 2016

To: Dr. Zed Mason  
Interim Assistant Vice Chancellor

Dr. Loren Blanchard  
Executive Vice Chancellor

From: Susan W. Martin   
Interim President

Subject: EO 1103 and Moss Landing Marine Labs

Enclosed please find the additional information you requested regarding EO 1103 and Moss Landing Marine Labs. Please do not hesitate to contact me for further information.

Response to letter from the Chancellor’s Office to Interim President Dr. Susan W. Martin dated 18 December 2015.

According to the letter dated 18 December 2015 (Appendix A), MLML was provided conditional authorization to continue current operations under EO 1103 until May 6th, 2016. To be fully authorized, the letter indicated that further information was required, which included six revisions to the original material submitted for authorization. We will address each of the six requested pieces of information below.

1) A revised 5-year strategic plan that includes a mission and vision statement, priorities and guiding principles, goals and measurable objectives that shall form the basis of a results-based accountability system. The revised strategic plan should include an implementation plan and schedule, and mechanisms for monitoring and evaluating progress of the MLML in meeting the primary mission and goals that will ultimately provide data that will be used in the development of future strategic planning and implementation efforts. While not a requirement, we would encourage that MLML have the strategic plan approved by their Governing Board or the necessary authorizing entities by April 1, 2016.

We request a submission extension of the plan until June 30, 2017 for the following reasons:

- Mary Papazian will begin her presidency at SJSU July 1, 2016.
- SJSU’s current strategic plan (Vision 2017 - <http://www.sjsu.edu/president/strategicplanning/> ) will expire at the end of 2017 and a new strategic planning policy has just been approved by the Academic Senate and the president. 2016/17 will be a planning year at SJSU and this additional time will allow MLML’s and SJSU’s plans to be in alignment.
- A robust and consultative planning process spanning the 16/17 academic year will provide appropriate time to broadly engage stakeholders.
- The plan must be approved by the MLML Governing Board and the administration of SJSU. This process will need to coincide with regularly scheduled board meetings.
- The chancellor is currently reviewing MLML’s consortium and financial
- models. An extension will allow the Chancellor to provide MLML with informed guidance in the planning process.

2) Organizational chart that clarifies the relationship between the MLML Director, the Governing Board, the Executive Committee, administration at the administrative campus (San Jose State University), the Chancellors Office, the Chair of MLML and the MLML associated student representative.

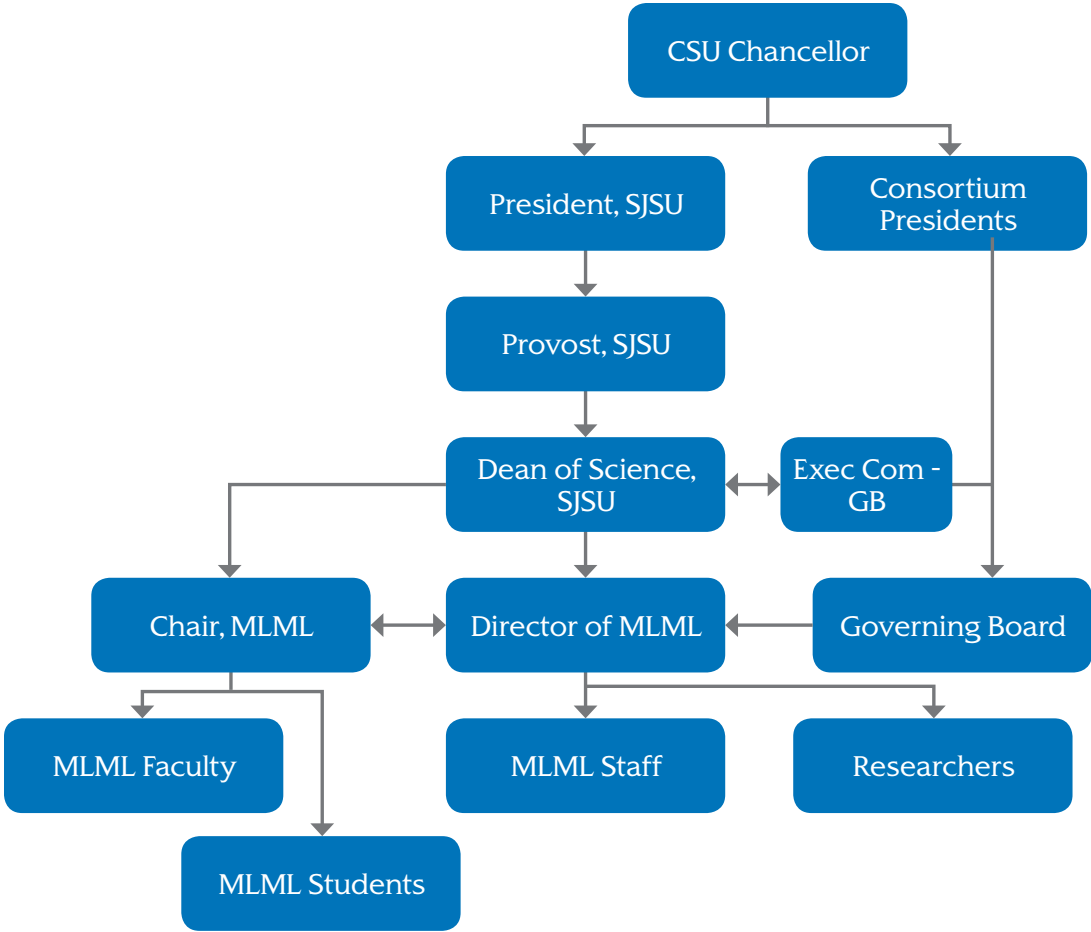


Fig. 1. Organizational chart for MLML.

The MLML Director manages the operations of the lab, oversees the 6 properties, provides access and resources for the research staff, and interacts with the Chair and faculty of MLML to support the educational program (Fig. 1). The Director interacts weekly with the Chair of MLML regarding curricular issues, faculty needs, and instructional requirements. The Chair articulates the financial requirements of the department and the Director works with the Assistant to the Director to develop a budget that supports the educational needs of MLML. The Director is invited to twice monthly faculty meetings. Faculty meetings include all the tenure/ tenure track (T/TT) faculty and representatives of the Research Faculty/Affiliates and the Student Body. Generally, the faculty meetings are used to discuss relevant issues of MLML and the output of those discussions provide input to the Director for needed actions, which the Director then executes based on their judgment. The students of MLML are organized with officers, and these officers meet regularly with the student body. The Director attends about two student body meetings a year to inform the students regarding current issues at MLML, and to answer any questions. The Director also meets with the Student Body Officers as needed. The Governing Board provides input to the Director regarding direction of the lab and provides oversight regarding curriculum changes and review of the Director’s performance. The Executive Committee in the past was the primary committee within the Governing Board that dealt with oversight of the MLML budget, but in the past two



years the entire Governing Board has covered those topics. Thus, the Executive Committee has met infrequently in the recent past. The Director reports to the Dean of Science at SJSU regarding major decisions associated with MLML, such as development, major acquisitions, annual budgets, personnel changes, etc. The Director also interacts with the AVP for Research and the Provost at SJSU to seek guidance regarding decisions, vision, and procedures. When necessary, the Chancellor's Office becomes involved in decisions associated with MLML via a path that flows from Director of MLML to Dean of Science (SJSU), to Provost, to President, to Chancellor or in the opposite direction. Occasionally, the Director or other members of the MLML staff will engage with personnel at the Chancellor's Office to deal with such issues as IT or Library services, or a CSU-wide program (e.g. recent interest in a CSU Center for Aquaculture).

**3) Clarify the term “regular faculty” (MLML Rules of Operation 3.1)**

The term “regular faculty” as used in the Rules of Operation refers to Tenure/Tenure Track faculty members and as defined by the CFA bargaining agreement.

**4) Criteria and process for selecting and evaluating research faculty and associates. Information required on classification and term of research faculty.**

Research Faculty and Research Affiliates are non-State employees that conduct research and contract work associated with MLML, hence they occupy soft money positions as employees of the SJSU Research Foundation. We consider Research Faculty to have an interest and activity associated with the academic mission of MLML, hence they may occasionally teach courses and advise students. Research Affiliates generally do not teach classes and do not mentor students. We have established guidelines for the selection and evaluation of Research Faculty and Research Affiliates (Appendix B). Research Faculty members are selected based on a review and approval by the MLML Faculty and Director after submitting a CV, letter of interest, and presenting a research seminar. Research Faculty members are provided PI status after a review and approval by SJSU and SJSU Research Foundation (SJSURF) administration. They also are provided with access to MLML resources (library, email, phone, FAX, vessels, vehicles, and dive equipment). The RTP committee and Director of MLML review them every three years. The MLML Faculty and Director approve Research Affiliates after reviewing a CV and Letter of Interest. The RTP Committee and Director of MLML review Research Affiliates every three years. Research Affiliates may act as a co-PI or a PI if granted that status by the MLML Director and administration of SJSU and SJSURF. The resources available to Research Affiliates are established by the Director of MLML.

**5) Guidelines for suspension and dissolution.**

The guidelines for suspension or dissolution of MLML are not in the current MLML Bylaws but proposed wording is presented below.

Suspension or dissolution of MLML can be called for by either the Chancellor or the Governing Board. One fiscal year's advance notice will be given to MLML in the event that suspension or dissolution of MLML is called for by the Chancellor.

A decision to suspend or dissolve MLML by the Governing Board must involve a consultative process and agreement between the campus membership and other stakeholders in support

of such action and requires the concurrence of the President of the Operating Institution. Any such recommendation to dissolve MLML must be justified, made in writing, and submitted to the Chancellor by the President of the Operating Institution.

Within one month of the notification of suspension or dissolution, the Chair of the Governing Board will present a separation plan to the President of the Operating Institution and the Assistant Vice Chancellor of Research, including a detailed justification for the temporary continuance of activities and the required funding necessary to meet outstanding obligations to ensure a controlled reduction in MLML activity towards suspension or dissolution. Consideration of reactivation of MLML following dissolution will require the submission of a new authorization proposal under EO 1103.

**6) Clarify criteria and process for the addition of non-CSU partners - if appropriate.**

MLML collaborates with other research institutions in Central California and particularly with institutions around Monterey Bay. As it was established, the MLML consortium was only an association of CSU campuses, and there may be an addition of other CSU campuses. There have been discussions of developing a joint Ph.D. program with different UC campuses (i.e., UC Santa Cruz and UC Davis). The MLML By Laws do allow non-CSU partners: “In special cases, the MLML Governing Board may also recommend to the Consortium Presidents formal affiliations with institutions outside the CSU for the purpose of promoting the mission of MLML. Examples may include PhD granting universities, research institutions, or other non-commercial collaborative groups, government agencies, or consortia with shared goals and purposes.”

Appendix A. Letter from the Chancellor’s Office indicating conditional authorization of MLML and required revisions to the original Annual Report.



401 Golden Shore, 6th Floor  
Long Beach, CA 90802-4210  
  
www.calstate.edu

A.Z. Mason, Ph.D.  
Interim Assistant Vice Chancellor for  
Research Initiatives and Partnerships  
562-951-4513/Fax 562-951-4867  
E-mail: zmason@calstate.edu

Loren J. Blanchard, Ph.D.  
Executive Vice Chancellor for  
Academic and Student Affairs  
Telephone: 562-951-4710  
Email: lblanchard@calstate.edu

December 18, 2015

Dr. Susan W. Martin  
Interim President  
San José State University  
One Washington Square  
San Jose CA 95192

Dear President Martin,

We are pleased to inform you that the materials submitted for the authorization of the Moss Landing Marine Laboratories (MLML) have met the majority of the provisions articulated under EO 1103 to demonstrate good standing for the expedited approval of prior established, permanently structured systemwide or multi-campus centers, institutes, or affinity groups.

Accordingly, the MLML is conditionally authorized to continue current operations under EO 1103 until May 6, 2016. To be fully authorized beyond this period, we are asking that you submit the documentation/revisions outlined in Appendix 1 for consideration by Friday April 1, 2016. The requested materials should be submitted via email to Polly Huggins [phuggins@calstate.edu](mailto:phuggins@calstate.edu). Failure to submit the required revisions, or an inability to meet the general provisions under EO 1103, could result in the suspension or dissolution of the MLML. Under these circumstances, the authorization of MLML would require the submission and approval of a new proposal as indicated in section D of EO 1103.

We look forward to hearing from you in due course and encourage you to submit any questions or concerns you may have regarding the process moving forward to Polly Huggins [phuggins@calstate.edu](mailto:phuggins@calstate.edu).

Sincerely,

A.Z. Mason, Ph.D.  
Interim Assistant Vice Chancellor  
Research Relationships and Partnerships

Loren J. Blanchard, Ph. D.  
Executive Vice Chancellor  
Academic and Student Affairs

c: Timothy White, Chancellor  
Andrew Feinstein, Provost, San Jose State University  
James Harvey, Director of Moss Landing Marine Laboratories

**CSU Campuses**  
Bakersfield  
Channel Islands  
Chico  
Dominguez Hills  
East Bay

Fresno  
Fullerton  
Humboldt  
Long Beach  
Los Angeles  
Maritime Academy

Monterey Bay  
Northridge  
Pomona  
Sacramento  
San Bernardino  
San Diego

San Francisco  
San José  
San Luis Obispo  
San Marcos  
Sonoma  
Stanislaus

APPENDIX 1

Required revisions. Due by Friday April 1, 2016. Please forward materials to [phuggins@calstate.edu](mailto:phuggins@calstate.edu).

- 1) A revised 5-year strategic plan that includes a mission and vision statement, priorities and guiding principles, goals and measurable objectives that shall form the basis of a results-based accountability system. The revised strategic plan should include an implementation plan and schedule, and mechanisms for monitoring and evaluating progress of the MLML in meeting the primary mission and goals that will ultimately provide data that will be used in the development of future strategic planning and implementation efforts. While not a requirement, we would encourage that MLML have the strategic plan approved by their Governing Board or the necessary authorizing entities by April 1, 2016.
- 2) Organizational chart that clarifies the relationship between the MLML Director, the Governing Board, the Executive Committee, administration at the administrative campus (San Jose State University), the Chancellors Office, the Chair of MLML and the MLML associated student representative.
- 3) Clarify the term “regular faculty” (MLML Rules of Operation 3.1)
- 4) Criteria and process for selecting and evaluating research faculty and associates. Information required on classification and term of research faculty.
- 5) Guidelines for suspension and dissolution.
- 6) Clarify criteria and process for the addition of non-CSU partners - if appropriate.



Appendix B.

Guidelines for Adjunct Faculty, Research Faculty, and Research Affiliates at MLML.

I.Mission Statement:

It is the policy of MLML to establish professional relationships with scientists capable and willing to make positive contributions towards the research and academic goals of the laboratories. MLML recognizes that these scientists offer a diversity of opportunities to the regular (tenure or tenure-track) faculty and students. MLML seeks to formally acknowledge this contribution by awarding titles, as appropriate, to these individuals. This process serves also to provide a formal institutional affiliation for these researchers to enhance their professional goals.

A complete delineation of the three categories is provided in Appendix A. Briefly, **Adjunct Faculty** members are those researchers not in residence that seek a formal relationship with MLML. **Research Affiliates** are those researchers in residence at MLML that do not hold the Ph.D. degree or typically do not seek to work autonomously with regard to submitting grants as a PI, or do not wish to serve in the capacity as outlined in Appendix A. In special circumstances, MLML will grant Research Faculty status to those persons who have demonstrated a commitment to the educational and research goals of the laboratories. **Research Faculty** are those researchers that are in residence at MLML, hold the Ph.D. degree, serve as PIs on grants, can be appointed as Lecturers, and are permitted to serve on student thesis committees that have the potential to set institutional policy.

II. Application:

Applicants should have documented evidence of achievement, professional expertise, and a continuing relationship with MLML. Applications must be supported by a sponsor from the regular MLML faculty. For Research and Adjunct Faculty, the role of the sponsor only is needed when submitting the initial application. Applications will be considered through the following recruitment procedures:

All applicants:

- Letter of application documenting their commitment to the labs, complete with CV should be submitted through a faculty sponsor.
- Seminar at MLML
- Evaluation by faculty and students.
- Faculty recommendation (via majority vote at regular faculty meeting) and Director approval.

Research and Adjunct Faculty only:

- Interview with Review Committee (with student representation).
- Seminar presentation.

Recommendation and approval shall be based on several criteria including student needs, MLML needs, regular faculty needs and area of research or interest, and available facilities/space.

III. Appointment:

The appointment to Adjunct Professor, Research Affiliate, or Research Faculty indicates a contract between the individual scientist and MLML. For Research and Adjunct Faculty, the sponsor is not responsible for the fate or actions of said researchers once the appointment has been made, however, for Research Affiliates the sponsor is responsible for the fate or actions of said researchers. Each of the three categories of appointment has a primary point-of-contact within the institution that serves in the capacity of oversight and guidance. For Adjunct Professors this is the Director. For Research Faculty this is the Department Chair and/or the RTP Committee as appropriate. For Research Affiliates it is their sponsor. The Director or appropriate person will prepare an appointment letter that specifies the privileges and responsibilities of the position.

The Director may call for a full review at any time. On-site appointments (Research Affiliate and Research Faculty) are subject to evaluation a minimum of every 3 years; reappointment is contingent upon the evaluation. Evaluations may occur more often depending upon the nature of the funding source and the requirements of jointly held appointments through SJSURF.

The appointment to Adjunct Professor, Research Affiliate, or Research Faculty is an unpaid position.

These titles, once formally granted, may be used as professional identification to indicate an affiliation with MLML.

IV. Privileges (Appendix 1):

Research Affiliates may:

1. Submit proposals as co-PI. (P.I. status may be approved on a case by case basis by the
2. Director).
3. Use MLML facilities as formally granted by the Director in consultation with the Chair.
4. Be actively involved in graduate student education through
  - a. service on thesis committees as third or outside committee member and
  - b. provision of research opportunities for MLML graduate students.
5. Be included in MLML and University brochures, reports and publications.
6. Occupy office space as available, at the discretion of the Director in consultation with the Space Committee. If additional space is needed, the adjunct will make a request through the space committee. With faculty approval, and if available, additional space may be allocated with Director approval.

Research Faculty at MLML are entitled to the above privileges with the addition of:

1. Submit proposals as P.I.
2. Use MLML facilities (library access, email, phone, fax, copy machine, administrative and facilities support as well as use of our vessels, vehicles and dive program) and consortium libraries consistent with privileges afforded tenure and tenure-track faculty in this regard.
3. Be actively involved in graduate student education additionally through
  - a. participation in student advisement and admissions evaluations,
  - b. service on thesis committees as “primary” advisor (see latest version of MLML Student Handbook for the role and requirements of the Adjunct in Advising and

- Serving on Student Theses Committees), and
- c. teaching (note that appointments as a Lecturer are dependent upon available funding, and at the discretion of the Director). Potential courses to be taught must be proposed to the Curriculum Committee according to the latest Course Proposal Guidelines.
- 4. Serve on MLML Faculty Committees that have the potential to set institutional policy. Research Faculty may not vote on matters limited to regular faculty as established by SJSU policy.

Privileges of Adjunct Faculty are granted at the discretion of the Director on a case-by-case basis.

V. Reappointment:

Adjunct Faculty: The Director of MLML, in consultation with the MLML faculty, will be responsible for assessing and reappointing at three-year intervals.

Research Affiliates: The Director and Department Chair of MLML, in consultation with the MLML faculty and sponsor, will be responsible for assessing and reappointing at three-year intervals. However, note that SJSURF requires annual evaluation of Affiliated Programs.

Research Faculty: MLML’s RTP Committee will be responsible for evaluating every three years based upon the requirements laid out in section VI. The MLML RTP Committee’s evaluation will be given to the Director who will then decide on reappointment.

VI. Evaluation:

The submitted material should include:

- 1. Current Curriculum Vitae
- 2. Brief Statement of activities related to MLML

The statement of activities (~2 pages) should provide comments on current research/academic projects, including funding and project timelines. Information may also include reference to:

- 1. MLML faculty involvement
- 2. Employment of MLML staff/students
- 3. Teaching/advising activities
- 4. Affiliations with other institutions
- 5. Location of office/research operations
- 6. Anticipated future plans

It is realized that not all of the above may be applicable. Research Faculty members are encouraged to keep statements of activities brief, highlighting personal research efforts, and interactions/ service within the MLML community. The length of the report is intentionally short to prevent this process from being onerous for the Research Faculty member. Evaluations will be completed within two months of submittal.

APPENDIX 1. EXPECTATIONS, QUALIFICATION AND RIGHTS OF ADJUNCT FACULTY, RESEARCH AFFILIATE, AND RESEARCH FACULTY

	Research Faculty	Adjunct Faculty	Research Affiliate
PhD Required	Yes	Yes	No
Formal Interview	Yes	No	No
3 yr Review Process <sup>1</sup>	RTP	Director	Director and Chair
Oversight	Chair	Director	Director
In-Residence	Yes	No	Yes
Space Granted By	Space Committee	N/A	Space Committee
PI on Grants	Yes	No	No <sup>2</sup>
Service on Thesis Committee	Yes <sup>3</sup> , as “primary”	Yes, 3rd or “outside” member	Yes, 3rd or “outside” member
Service on MLML Cmtes that may set institutional policy	Yes	No	No
Sponsorship needed	Only when applying	Only when applying	Yes
Teach (Lecturer Appt)	Yes <sup>4</sup>	No <sup>2,4</sup>	No

<sup>1</sup> Note that annual reviews are required by SJSURF, and conducted by the Director, for Affiliated Programs

<sup>2</sup> Special exceptions may be granted by the Director

<sup>3</sup> See latest version of MLML Student Handbook for complete description of the formal role of the Research Faculty in this sense.

<sup>4</sup> See latest version of MLML Course Proposal Guidelines for details on how to submit a potential course. Appointments are contingent upon course approval by the Curriculum Committee, financial resources, and approval by the Director



APPENDIX 2.

RESEARCH FACULTY, ADJUNCTS, & AFFILIATES @ MLML

Research Faculty		
Name	Appointment Date	
1. Bartl, Simona	2001	
2. Breaker, Larry	2005?	
3. Ebert, David	2003	
4. Kim, Stacy	1999	
5. Loeb, Valerie	1992	
6. Oliver, John	1990	
7. Smith, Jason	2004	
8. Starr, Richard	2002	
9. Steller, Diana	2004	
10. Stimpert, Alison	2015	
Adjunct (Non-Resident) Faculty		
Name	Appointment Date	
1. Barry, Jim	1994	
2. Brown, Tom	2004	
3. Garrison, Bob	1996	
4. Robison, Bruce	1994	
Research Affiliates		
Name	Appointment Date	
1. Benson, Scott	2002	
2. Bizzarro, Joe	2015	
3. Clark, Ross	2007	
4. Collins, Curt	2014	
5. Fairey, Rusty	2000	
6. Heim, Wes	2012	
7. Null, Kim	2015	
8. Stephenson, Mark	1995	
9. Yarborough, Mark	2007	
10. Zeligs, Jennifer	2002	
Technicians		
Name	Appointment Date	Sponsor
1. Campbell, Tracy	2013	Geller
2. Adelaars, Jason	2014	Director

Appendix 6

MLML Conditional Authorization EO 1103



Academic and Student Affairs  
401 Golden Shore, 6th Floor  
Long Beach, CA 90802-4210

www.calstate.edu

Loren J. Blanchard, Ph.D.  
Executive Vice Chancellor

Tel: 562-951-4710  
Email: [lblanchard@calstate.edu](mailto:lblanchard@calstate.edu)

April 25, 2016

Dr. Susan W. Martin  
Interim President  
San José State University  
One Washington Square  
San José, CA 95192-0002

Dear President Martin,

On behalf of Chancellor White, I am pleased to approve your request for an extension in the deadline to submit a revised strategic plan for approval of the Moss Landing Marine Laboratories (MLML) under EO 1103.

We acknowledge the need for extended dialogue on your campus and with the Chancellor’s Office to develop a robust and enduring 5-year strategic plan and note your intent to submit the required materials by June 30, 2017. Accordingly, MLML is authorized under EO 1103 to continue operations as a conditionally approved facility until July 31, 2017. We look forward to hearing from you in due course.

Sincerely,

Loren J. Blanchard, Ph. D.  
Executive Vice Chancellor

c: Timothy P. White, Chancellor,  
A.Z. Mason, Interim Assistant Vice Chancellor for Research  
Andrew H. Feinstein, Provost, San José State University  
James T. Harvey, Director, MLML

CSU Campuses  
Bakersfield  
Channel Islands  
Chico  
Dominguez Hills  
East Bay

Fresno  
Fullerton  
Humboldt  
Long Beach  
Los Angeles  
Maritime Academy

Monterey Bay  
Northridge  
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Sacramento  
San Bernardino  
San Diego

San Francisco  
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Sonoma  
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**1966-2016**

