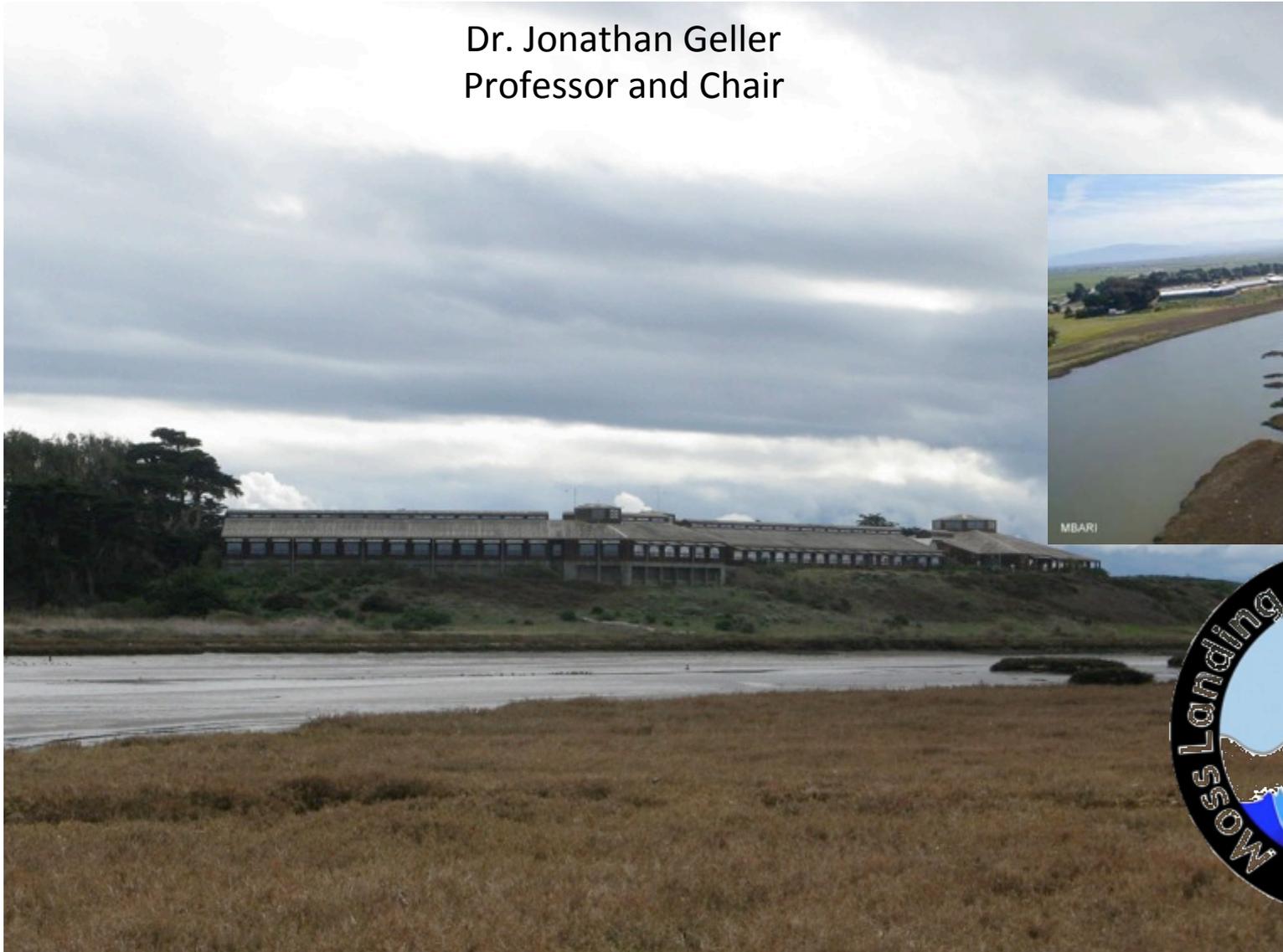


Monterey Bay Sanctuary Advisory Council

Welcome to Moss Landing Marine Laboratories

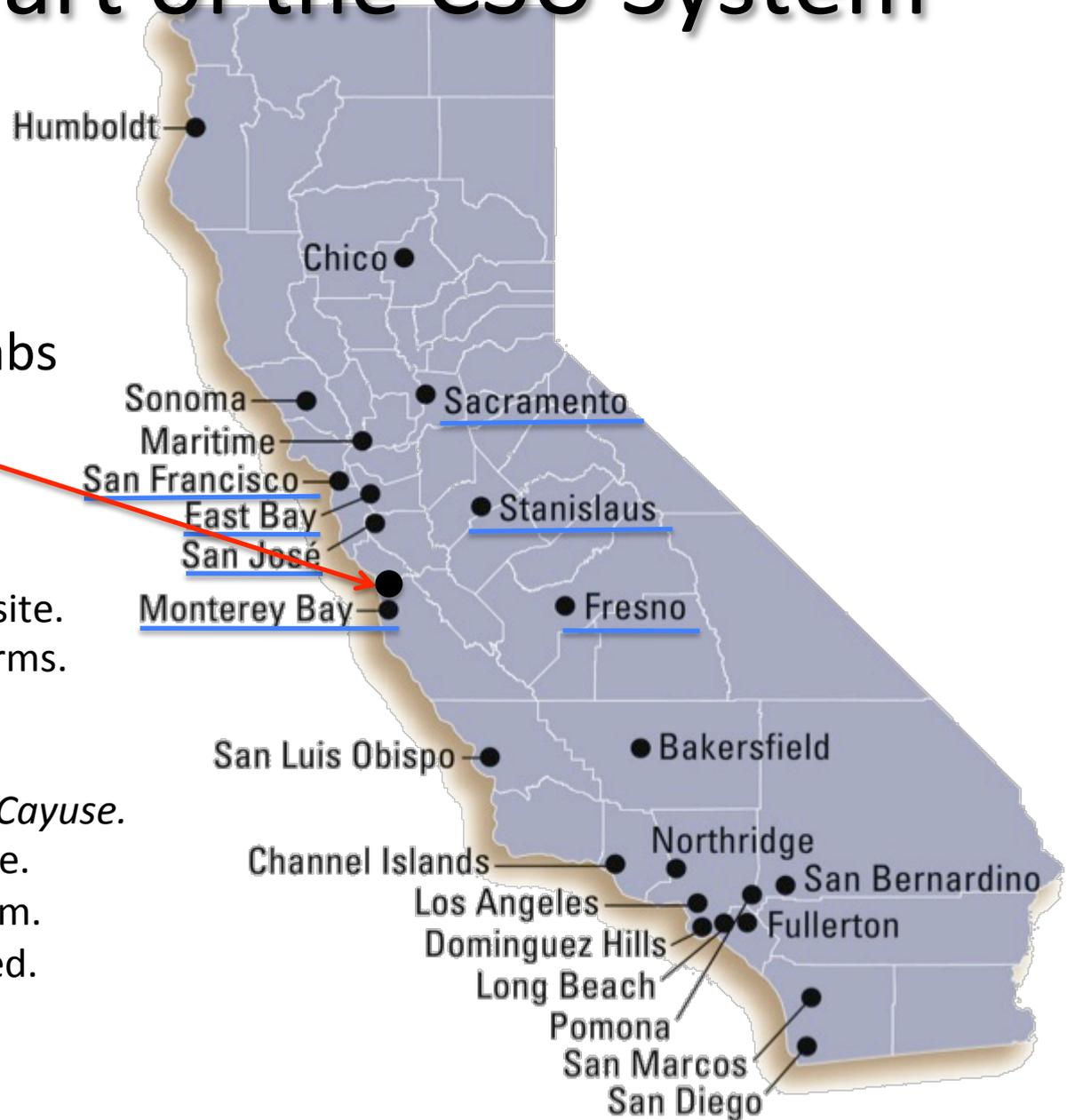
Dr. Jonathan Geller
Professor and Chair



MLML: Part of the CSU System

Moss Landing Marine Labs

- 1960s -Search for marine lab site.
- 1965 -Original consortium forms.
- 1966 -First classes.
- 1968 -First graduate.
- 1984 -*RV Pt. Sur* replaces *RV Cayuse*.
- 1989 -Loma Prieta earthquake.
- 1996 -CSUMB joins consortium.
- 2000 -New building completed.
- 2012 -600th MS degree!



Marine Science Disciplines

- Biological, Chemical, Physical and Geological Oceanography
- Phycology
- Vertebrate Ecology
- Ichthyology
- Invertebrate and Molecular Ecology



2013 STATE OF MLML
Jim Harvey (Director)



FACULTY

Ivano Aiello – Geo. Oce.
Kenneth Coale – Chem. Oce.
Jon Geller - Invertebrate/Molecular Ecol.
Mike Graham - Phycology
Scott Hamilton - Ichthyology
Jim Harvey - Director/Airbreathers
Erika McPhee-Shaw – Physical Oce.
Joan Parker – Information Services
Nick Welschmeyer - Biol. Oce.

RESEARCH FACULTY

Simona Bartl – Teacher Ed.
Larry Breaker – Physical Oce.
Dave Ebert – Pac. Shark Research Center
Stacy Kim – Benthic Ecology
Val Loeb – Biol. Oce.
Jason Smith – Env. Biotech lab
Rick Starr – Fisheries and Conserv.
Diana Steller – Phycology/DSO

AFFILIATED RESEARCHERS

Scott Benson – NMFS Marine Turtle Research Program
Ross Clark – Central Coast Wetlands Group
Rusty Fairey – Marine Pollution Studies Lab MLML
Wes Heim – Marine Pollution Studies Lab DFW
Sam Hulme – Chemical Oce./Mass Spec
Mark Yarbrough – Marine Optical Buoy Project (MOBY)
Jennifer Zeligs – Science Learning and Explor. with Sea lions (SLEWTH)

EMERITUS FACULTY (not presenting)

Bill Broenkow – Physical Oce.
Greg Cailliet – Ichthyology/Friends
Mike Foster – Phycology
Gary Greene – Geo Oce./ Center for Habitat Studies



A few Recent Faculty Achievements

- **Jon Geller** (Inverts) received part of a 4.87 million NSF grant to study biodiversity in Coral Triangle
- **Erika McPhee-Shaw** (Phys. Oce.) awarded Leopold Leadership Fellowship, keynote @ Gordon Research Sem., Chair of CeNCOOS
- **Nick Welschmeyer** (Bio. Oce.) presents at United Nations International Maritime Org.
- **Scott Hamilton** (Ichthy.) awarded CA Sea Grant Focus Award/COAST Grant Develop.
- **Mike Graham** (Phyc.) leads MLML involvement in Steinbeck Innovation Smart Farms Systems
- **Kenneth Coale, Ivano Aiello** NSF grants



MONITORING PROJECT

Autonomous Reef Monitoring System (ARMS) in a central California kelp forest

[Overview](#)[Summary to Date](#)[Monitoring Trends](#)[Parameters](#)[Methods](#)[Figs. & Images](#)[Documents](#)

Principal Investigator(s)

- **Jonathan Geller**
Moss Landing Marine Laboratories, California State University
- **Stephen Palumbi**
Stanford University
- **Steve Lonhart**
Monterey Bay National Marine Sanctuary

Start Date: May 09, 2013

This project will assess both marine biodiversity and bioinvasions using a variety of genetic methods, including DNA barcoding and metagenomic analyses of benthic communities, in which bulk DNA from entire assemblages are extracted and sequenced by Next Generation Sequencing technology. The Geller lab has installed an Ion Torrent Personal Genome Machine at MLML and now has the ability to run analyses in-house at MLML.

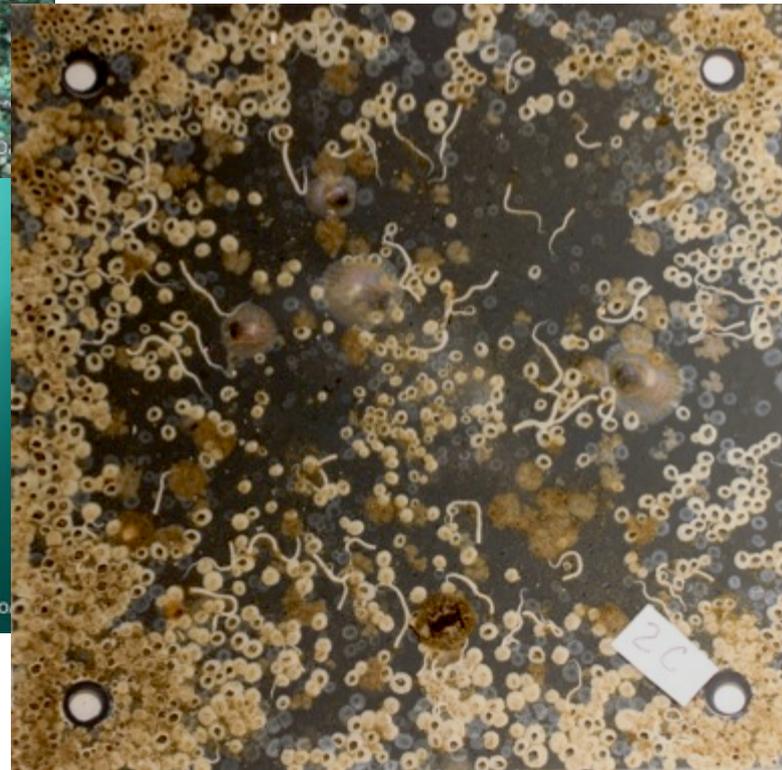
Settling modules called Autonomous Reef Monitoring System (ARMS) are deployed, colonized by biota, retrieved and analyzed. ARMS are a systematic sampling tool to comparatively assess spatial patterns and monitor temporal trends in the diversity of poorly-known cryptic biota on reefs worldwide. Mimicking the structural complexity of benthic habitats to attract colonizing sessile and motile organisms, ARMS have been deployed in shallow (12-15 m) reef habitats across biogeographic, oceanographic, and human impact gradients in the Pacific, Atlantic, and Indian Oceans, almost exclusively in tropical and sub-tropical systems. To our knowledge there have been very few attempts to use this method in temperate waters.



Monitoring Biodiversity with ARMS in Monterey Bay

MLML
HMS
MBNMS

Network with WAML, TMO, Marine BONs, GOs, OSD



This work is not possible without partnership with MBNMS

MLML Graduate Program

- Master of Science in Marine Science
- Approximately 100 graduate students

Our unique blend of graduate level teaching and research involving graduate students distinguishes us among the many marine science institutions of Monterey Bay.



Majority of student and faculty research occurs in the Monterey Bay Marine National Sanctuary

The Future

- New Vertebrate Ecologist
- Academic Village/ Center for Sustainable Ocean Science
- Aquaculture Facility
- Integrated Marine Facilities and Sustainable Fishing Center

MLML/SJSURF properties

Norte
Marine Operations/Diving
Del Mar

Shore lab

Moss Landing

Sandholdt Rd

Dolan Rd

Cabrillo Hwy

Sandholdt

Main Lab

431 m

© 2013 Google

Google earth

Imagery Date: 5/5/2012

36°48'01.30" N 121°47'04.60" W elev 5 m

Elev alt 1.87 km



The Sandholdt Center: An academic village containing housing for students and visiting faculty, research labs for visiting scientists, and a conference facility. We received an NSF FSML Planning grant.

Plans:

Housing

Research labs for visiting researchers

Conference facility



MLML properties at the harbor

Shore lab

Norte

Sandholdt Rd

Whale Way

Flounder Way

Bass Way

Del Mar

© 2013 Google

Small Boats/Diving

103 m

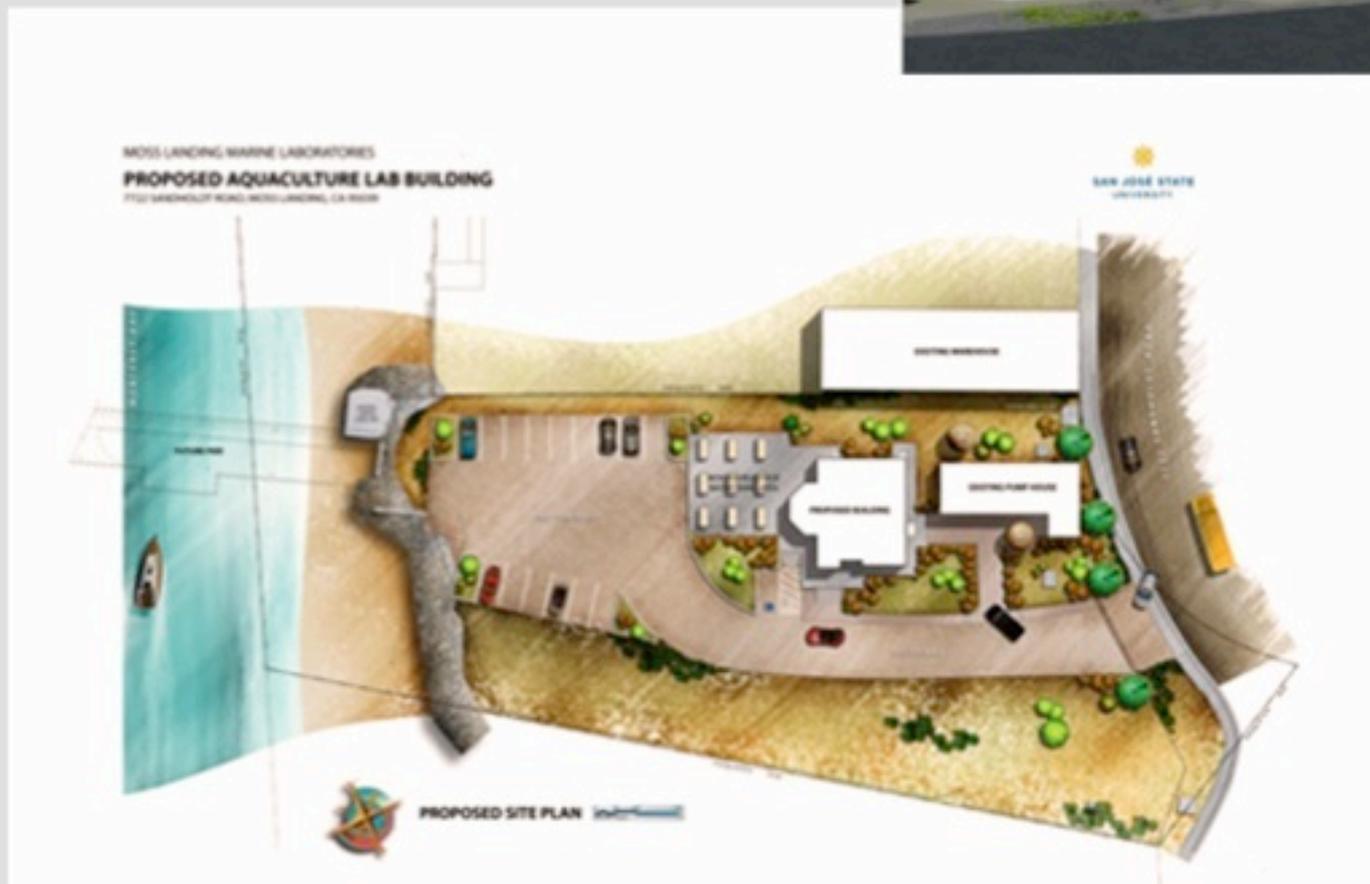
Google



Center for Sustainable Aquaculture

Plans:

- Construction begins end of Sept.
- Funded by Packard Foundation and MLML
- Industrial partners (e.g. Monterey Abalone Co.)
- Future development for large tanks multi-use



Integrated Marine Facilities and Sustainable Fisheries Complex

Plans:

- Development of Del Mar property dependent on future of *R/V Point Sur*
- Want to provide new space for marine operations and diving.
- We want to provide continued space for fishery off-loading.



Regional Class Research Vessel Point Sur

- 135' vessel operated by MLML in the UNOLS fleet for the past 30 years.
- Some accomplishments:
 - 750 cruises in last 20 yrs (3,500 days @ sea)
 - 10,000 student days at sea for CSU
 - Use by UCSC, NPS, MBARI, UCSB, etc.
 - Range: Alaska, Hawaii, Mexico, CA, OR, WA
 - Unprecedented 5 month trip to Antarctic



Enjoy your day at MLML and have a productive meeting!

