MPA Baseline Program

Annual Progress Report

Principal Investigators - please use this form to submit your MPA Baseline Program project annual report, including an update on activities completed over the past year and those planned for the upcoming year. This information will be used by the MPA Baseline Program Management Team to track the progress of individual projects, and will be provided to all MPA Baseline Program PIs and co-PIs prior to the Annual PIs workshop to facilitate discussion of project integration. Please submit this form to California Sea Grant when complete (sgreport@ucsd.edu, Subject [Award Number, project number, PI, "Annual Report"].)

Project Information

Project Year	2015	**MLPA Region**	North Coast Region
Project Title & Number	Baseline Characterization and Monitoring of the MPAs along the North Coast: ROV Surveys of the Subtidal. Project Number: R/MPA-41		

PI name	Andrew Lauermann	**Co-PI name**	Dirk Rosen

PI Contact Info **Co- PI Contact Info**

(please list additional PIs and contact info in the "Project Personnel" section if necessary)

Address	321 3rd Street, Eureka CA 95501	**Address**	1230 Brickyard Cove Road, Suite 101, Richmond CA 94801
Email	andy@maregroup.org	**Email**	dirk@maregroup.org
Phone	530 210-6604	**Phone**	510 232-1541

Project Goals & Objectives

Three primary project goals have been proposed and include: 1) baseline characterization of selected MPAs across the North Coast Study Region, 2) assessment of initial changes in fishes, macro-invertebrates, and associated seafloor habitats in select MPAs during the first two years following designation, and 3) recommendations for future monitoring efforts in the region. Three of the ecosystem features identified as priorities in the North Coast RFP: Mid-depth Rock Ecosystems, Soft-bottom Subtidal Ecosystems, and Deep Ecosystems including canyons within MPAs and adjacent reference study sites will be surveyed. The objectives for each primary goal are described below:

Baseline Characterization

Prior to field data collection, we will review available historical information on subtidal communities represented in north coast. This will include an evaluation of remote operated vehicle (ROV) data collected by the Project Leaders in partnership with California State University Monterey Bay and the California Department of Fish and Wildlife in the North Coast Study Region during 1999, 2001, and 2004 and the North-Central Coast Study Region from 2009-2011, focusing primarily on fish and invertebrate species found in rocky habitats sampled at those locations. Using historical information and available multibeam mapping data, study sites and transect locations will be selected.

Following transect selection, we will collect both video and still photographic imagery of mid-depth (20-100m) and deep (>100 m) subtidal, soft and hard bottom habitats, inside and out of (from north to south) Pt. St. George Offshore SMCA, Reading Rock SMR, Mattole Canyon SMR, and Ten Mile SMR to provide a permanent record of seafloor communities occurring at the time of MPA implementation. Sampling will include video and still imagery of 1) substrate and seafloor structure, 2) macro-invertebrates, and 3) associated fishes. Using video and still imagery collected (over both sampling years), we will provide a summary description and assessment of ecological conditions inside SMRs and/or SMCAs and comparable reference sites outside.

Assessment of Initial Ecological Changes

One year after the initial ROV survey, we will collect a second year of video and still photographic imagery from the same treatment sites sampled in Year 1. Using both years' data, we will describe any ecological changes to community composition and structure in sites sampled, including all fishes and macro-invertebrates (species composition, abundance and density, and size distributions) and seafloor habitats (percent cover and relief of biogenic and physical habitat attributes identified as priorities). We will also identify data elements considered sensitive and/or rapid to respond to MPA implementation. Potential explanations for any changes observed, specifically whether they can be attributed to MPA establishment, will be provided.

Recommendations for Future Monitoring

Using data collected, we will evaluate the spatial and temporal scale at which ROV imagery should be sampled to produce robust data on species assemblages and habitat composition. We will recommend a set of indicator species (based on quantitative analysis), technology, and methods to assess long-term status and trends for subtidal ecosystems surveyed.

Summary of Project Activities Completed to Date

Overview of Project Year __ Activities, including progress towards meeting goals & objectives

All activities performed over year two were focused on meeting project objectives for goal 1: Baseline Characterization and goal 2: Assessment of initial changes in fishes, macro-invertebrates, and associated seafloor habitats in select MPAs during the first two years following designation. Video imagery collected during year one (2014) were post-processed during the year two period. From the 2014 video, over 60 thousand fish from 56 species and over 69,000 invertebrates from 64 different species were enumerated. In addition to fish and invertebrate annotation, substrate and habitat was also identified for each second the vehicle was on transect.

Year two field data collection also occurred from October 6th through the 19th, which produced over 50 km of video transects from 29 individual ROV dives (see attached figures). Year two project sampling goals were met at all sites, with the exception of the Point Saint George Offshore SMCA reference site, where large westerly swells during the sampling period caused water visibility to drop to less than 1 foot. In addition to sampling the four project MPAs, we were also able to sample the Sea Lion Gulch SMR, which was also surveyed and post-processed by the project PI's in 2014 as part of a California Department of Fish and Wildlife statewide survey.

Highlights from project progress so far, such as successes achieved, new collaborations or partnerships, or interesting stories from the past year that may be suitable for a blog post or other media venue

See "Project Outputs and Materials".

Description of any unforeseen events and substantial challenges, and resulting effects on project activities and progress. Please indicate any issues that may affect other PI's or require coordination with other Baseline partners (e.g., ME, DFG, Sea Grant).

Due to a 10 foot westerly swell that set in during our survey of the Point Saint George Offshore SMCA, we were unable to survey the reference site, as water visibility dropped to less than 1 foot. With the westerly swell projected to persist for almost a week, we were forced to leave the area and head south to Fort Bragg. We were however able to survey the Sea Lion Gulch SMR during our planned 4 days at the Mattole Canyon SMR. Due to unusually calm ocean conditions at Mattole Canyon we were able to complete our survey quicker than planned, which allowed us to survey the Sea Lion Gulch SMR, which was also sampled the previous year (2014) as part of a CDFW statewide ROV assessment.

Data status (i.e., paper/raw format or digitized; if digitized, what format?)

Video data collected in 2014 has been digitized into a Microsoft Access Database. Data includes tables for fish, invertebrates, substrate and habitat, ROV position and sensor data, and Seabird CTD data. All 2015 data is still in its original raw format and includes standard definition video transects (both forward and down facing cameras) recorded to DVD and DVCAM tapes. For both 2014 and 2015, standard resolution stereo video, high definition video and high definition still imagery have been recorded onto portable hard drives. Raw ROV sensor and positional data has also been recorded onto the hard drives and recorded to the field PC hard drive.

Data Formats
Forward and down facing video: DVD-R and Sony PDV-184N
Stereo video: Standard computer format (.avi)
HD video: Sony Handycam format (.mts)
ROV sensor and positional data: Hypack shared memory format (.out) and text string format (.txt)

Activities Planned for following Project Year __ (if applicable) – *Please describe remaining work and approximate timelines for completing that work, including any anticipated budget variances necessary to complete the project.*

Year three activities include processing of year two video data, data analysis and reporting. It is anticipated that year two video processing will continue through May 2016 with analysis and reporting occurring concurrently through the remainder of the project year.

Project Personnel – *Please indicate additional project personnel involved in your MPA baseline project, including students and volunteers, or additional PI contact information if necessary, as well as the nature of their assistance in the project project.*

	Students Supported	*Student Volunteers*	*Nature of Assistance*
K-12		*1*	*Volunteer*
Undergraduate	*1*		*Paid position*
Masters	*2*		*Paid position & use of data*
PhD			

Number of other Volunteers not counted above and the nature of their assistance in the project:

None

Additional PI contact info not listed on first page:

Dr. Rick Starr:
California Sea Grant Extension Program
Moss Landing Marine Labs
8272 Moss Landing Road,
Moss Landing, CA 95039.
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Email: starr@mlml.calstate.edu

Donna Kline:
Moss Landing Marine Labs
8272 Moss Landing Road,
Moss Landing, CA 95039.
Phone: (831) 771-4446
Email: dkline@mlml.calstate.edu

Cooperating Organizations and Individuals - *Please list organizations or individuals (e.g., federal or state agencies, fishermen, etc.) that provided financial, technical or other assistance to your project since its inception, including a description of the nature of their assistance.*

Name of Organization or Individual	*Sector (City, County, Fed, private, etc.)*	*Nature of cooperation (If financial, provide dollar amount.)*
Name of Organization or Individual	*Sector (City, County, Fed, private, etc.)*	*Nature of cooperation (If financial, provide dollar amount.)*
Campbell Foundation	*Foundation*	*Financial Support*
Goodman Family Foundation	*Foundation*	*Financial Support*
Michael Prall	*State (CDFW)*	*Survey Planning / Field Participation*

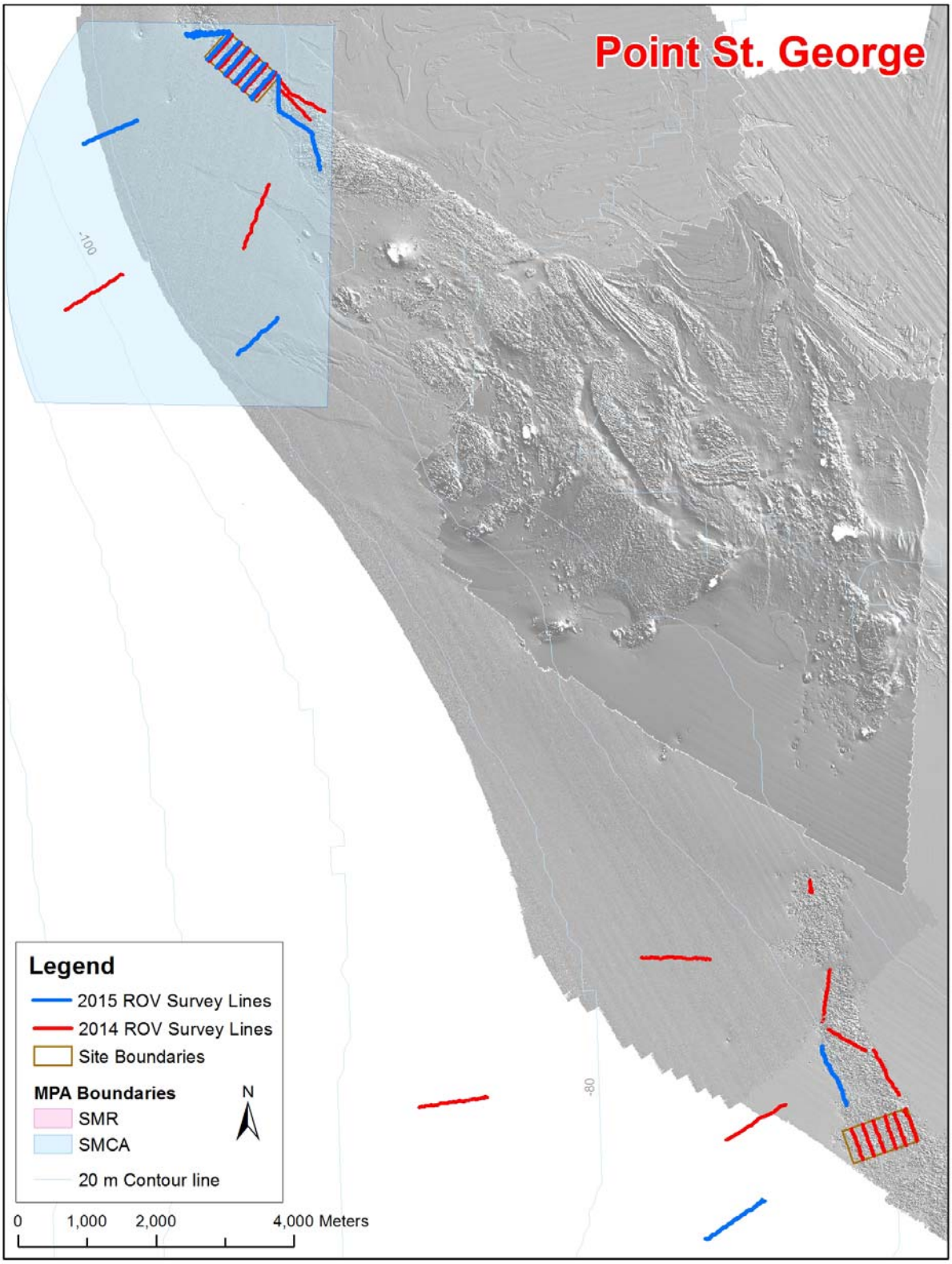
Project Outputs and Materials: *Please provide any other project-relevant information, such as descriptions of attached materials, media coverage your project has received, presentations, publications, images etc.*

Several blog posts were posted to Ocean Spaces describing our north coast field activities as well as several social media posts to the Marine Applied Research and Exploration Facebook, Twitter and Instagram accounts. In addition to social media, the project PI also presented research goals and preliminary results to north coast community members. Following our October 2015 field season, an open house event was held to allow community members to come aboard the research vessel and see firsthand the equipment used and hear a detailed account of our activities at sea. Following the research vessel tour, participants were directed to our Eureka office to learn about the video processing and data outputs that are produced from the video collected. Over 50 community members participated in the event, including a local radio reporter who interviewed the project PI about the work being done along the north coast.

In addition to the open house, we also participated in two local north coast events, the December 2015 Oceans Night and the December Arts Alive. Participates at Oceans Night were able to view underwater video highlights from the north coast on a theater sized screen, followed by a presentation by the project PI. Our local office opened its doors a few days later for the monthly Arts Alive, where community members were able to tour the office and talk one-on-one with project staff.

For the fourth year in a row, almost a hundred K-12 students have been educated about our work. Seventh grade students from a local north coast school have shared in the 2014 ROV surveys through short email descriptions and imagery. The students also had the opportunity to not only learn about the work we are doing, but also got the opportunity to see the real “pressures” associated with our work. Students colored and personalized Styrofoam cups that we took to the bottom of a nearby canyon to be compressed by the weight of 400 meters of water.

Attached figures showing both 2014 and 2015 survey lines by site.


Point St. George
-100
-80
Legend
2015 ROV Survey Lines
2014 ROV Survey Lines
Site Boundaries
MPA Boundaries
SMR
SMCA
20 m Contour line
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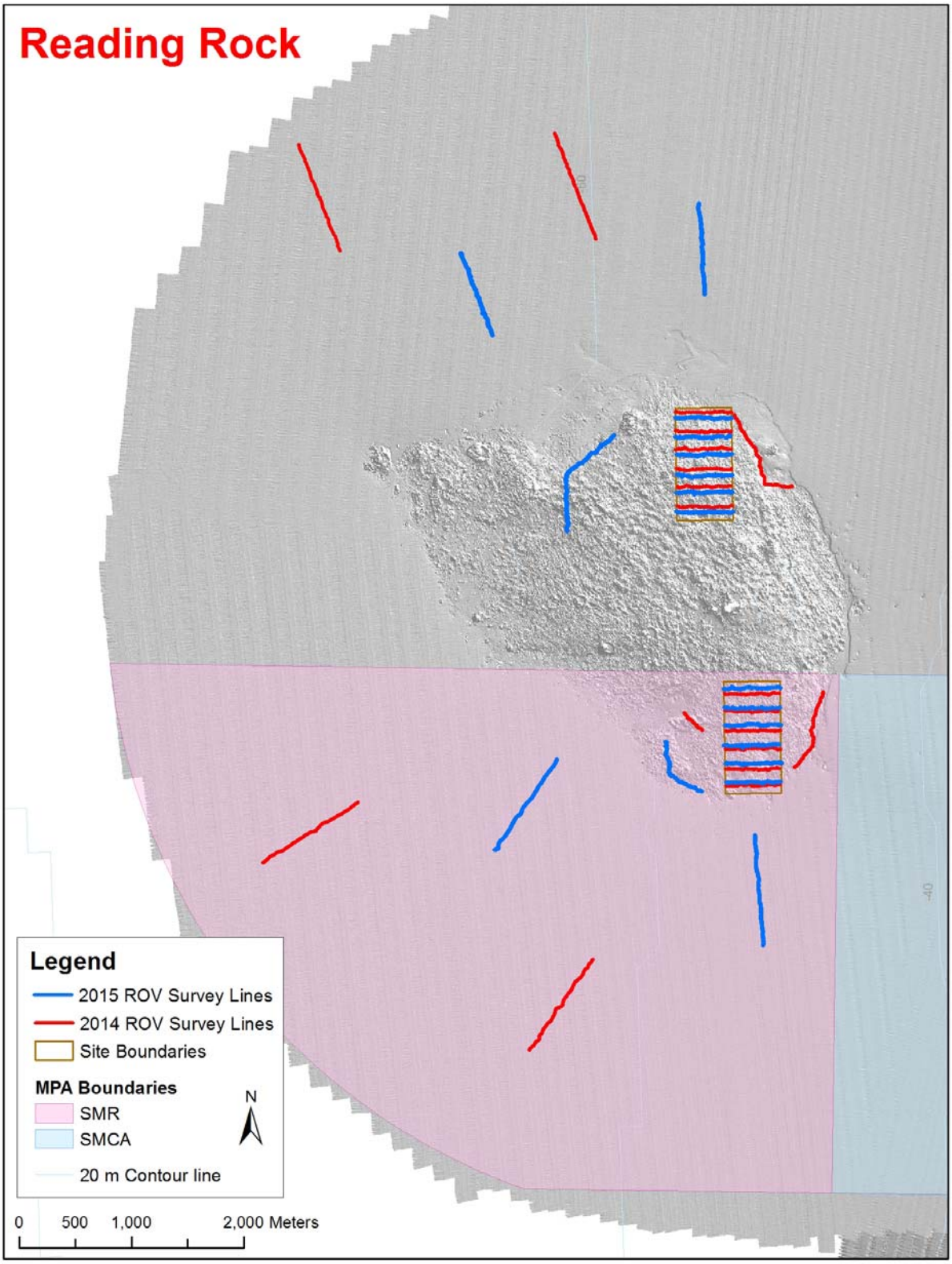
4,000 Meters


Reading Rock
Legend
2015 ROV Survey Lines
2014 ROV Survey Lines
Site Boundaries
MPA Boundaries
SMR
SMCA
20 m Contour line
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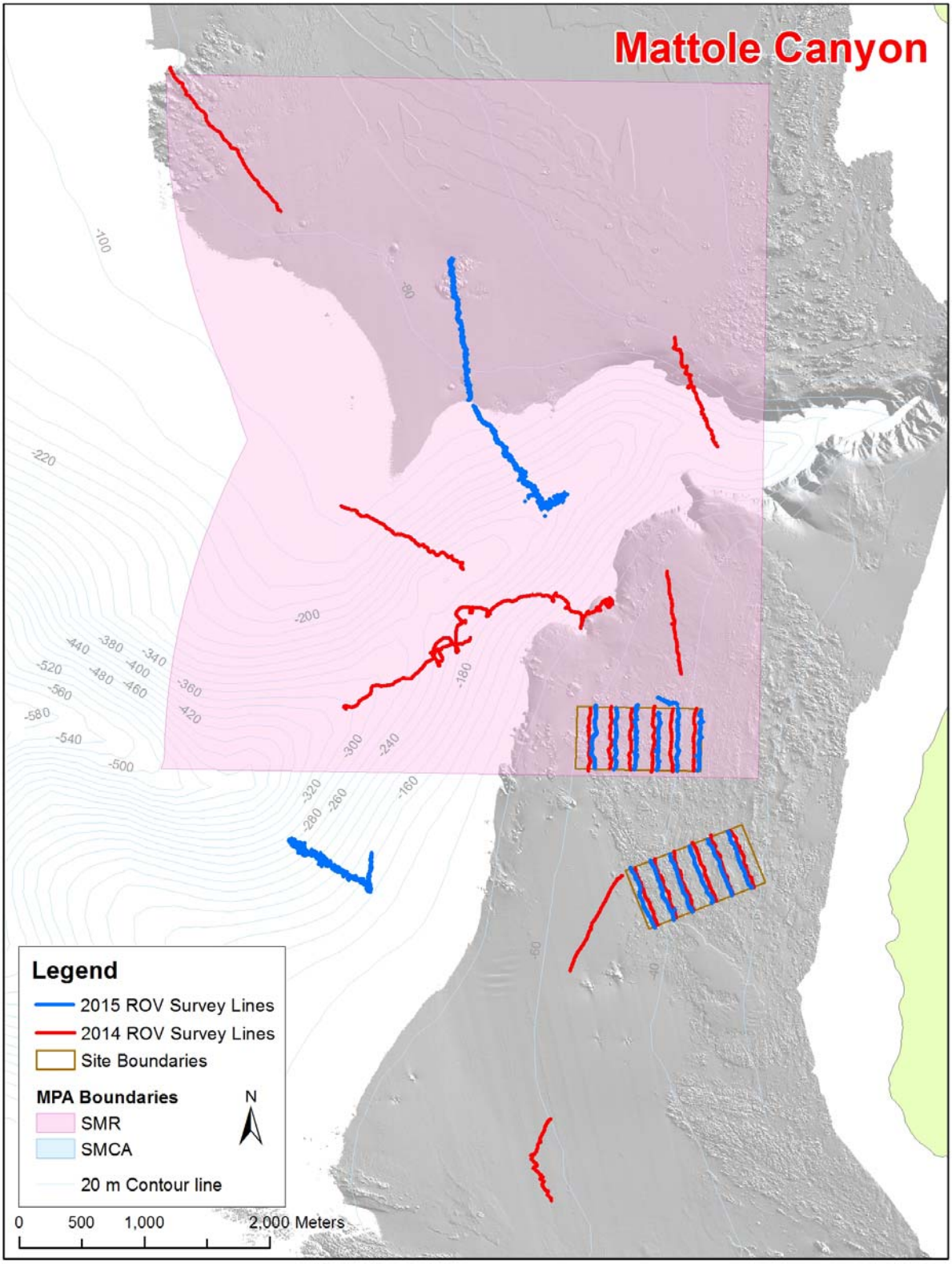
2,000 Meters


Mattole Canyon
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-400
-560
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-360
-580
-420
-540
-300
-240
-500
-320
-280
-260
-160
-60
Legend
2015 ROV Survey Lines
2014 ROV Survey Lines
Site Boundaries
MPA Boundaries
SMR
SMCA
20 m Contour line
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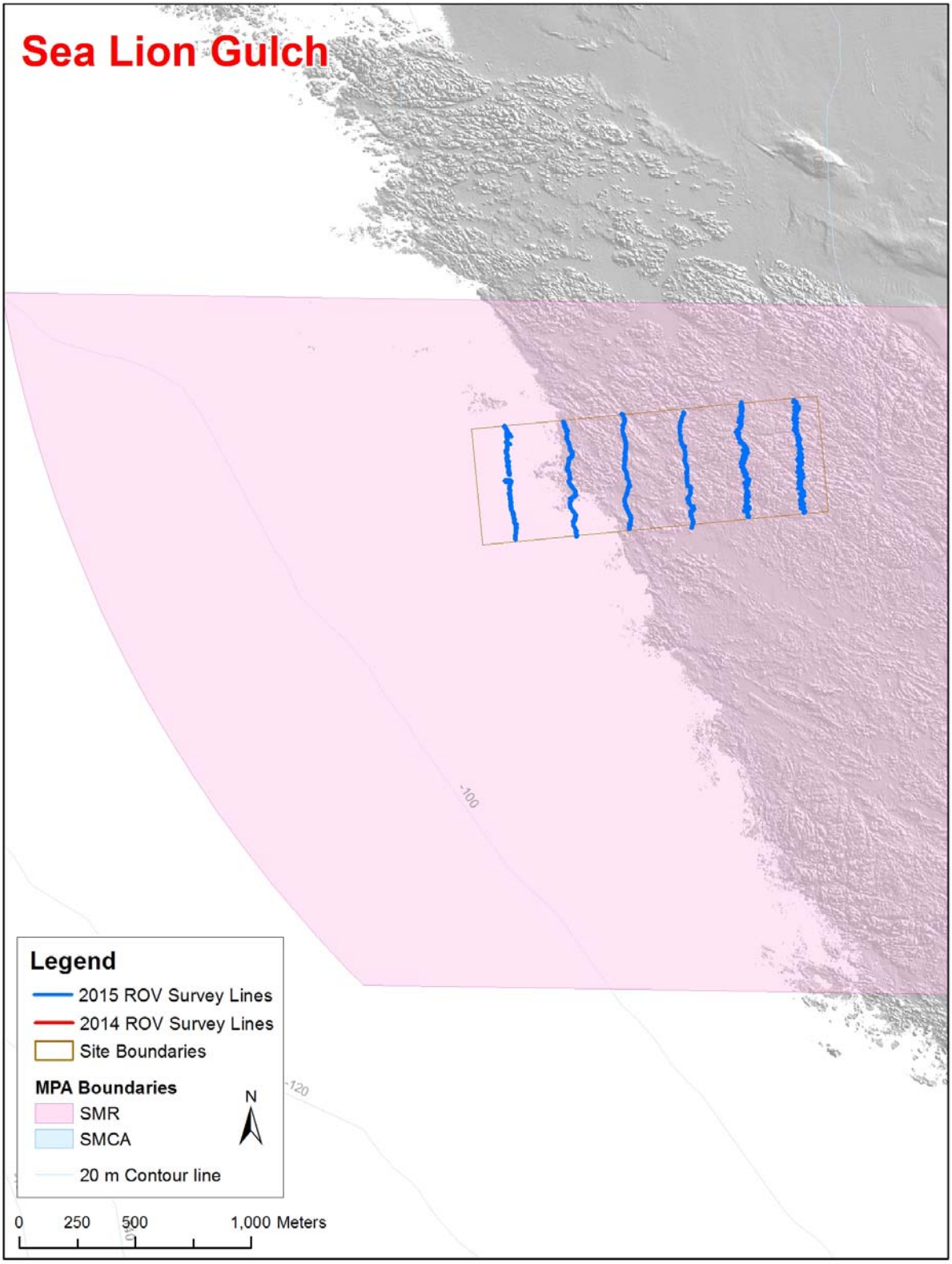
2,000 Meters


Sea Lion Gulch
-100
-120
Legend
2015 ROV Survey Lines
2014 ROV Survey Lines
Site Boundaries
MPA Boundaries
SMR
SMCA
20 m Contour line
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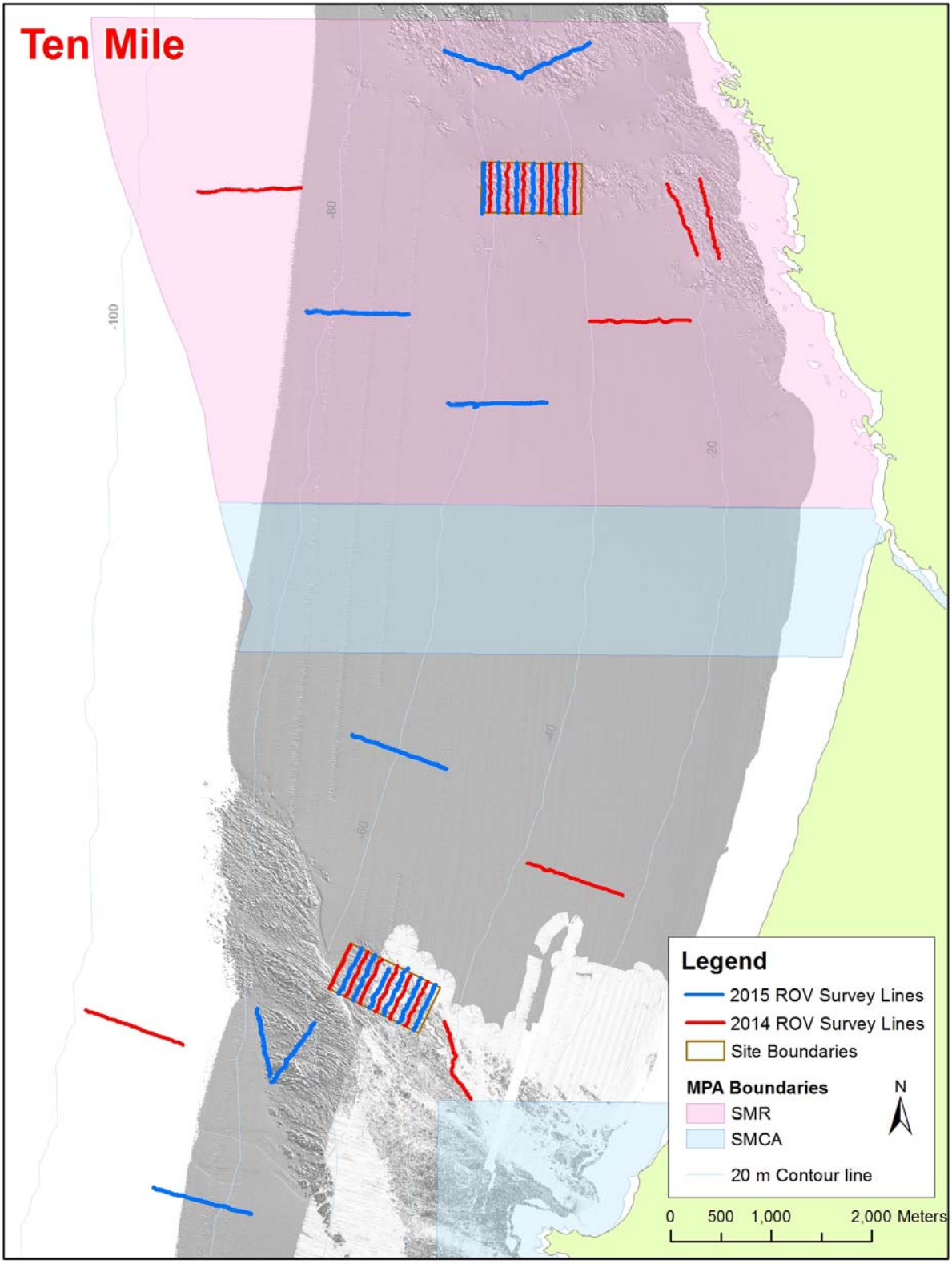
1,000 Meters


Ten Mile
-60
-100
-20
-40
-60
Legend
2015 ROV Survey Lines
2014 ROV Survey Lines
Site Boundaries
MPA Boundaries
SMR
SMCA
20 m Contour line
N
0 500 1,000 2,000 Meters

MPA Baseline Program

Annual Progress Report

Principal Investigators - please use this form to submit your MPA Baseline Program project annual report, including an update on activities completed over the past year and those planned for the upcoming year. This information will be used by the MPA Baseline Program Management Team to track the progress of individual projects, and will be provided to all MPA Baseline Program PIs and co-PIs prior to the Annual PIs workshop to facilitate discussion of project integration. Please submit this form to California Sea Grant when complete (sgreport@ucsd.edu, Subject [Award Number, project number, PI, "Annual Report"].)

Project Information

Project Year	2015	**MLPA Region**	North Coast
Project Title & Number	R/MPA-41B, Grant Number C0100100 Title: Baseline Characterization and Monitoring of the MPAs along the North Coast: ROV Surveys of the Subtidal		
PI name	Rick Starr	**Co-PI name**	

PI Contact Info **Co- PI Contact Info**

(please list additional PIs and contact info in the "Project Personnel" section if necessary)

Address	Moss Landing Marine Labs, 8272 Moss Landing Road, Moss Landing, CA 95039	**Address**	
Email	starr@mlml.calstate.edu	**Email**	
Phone	831-771-4442	**Phone**	

Project Goals & Objectives

The remotely operated vehicle (ROV) work Marine Applied Research & Exploration (MARE) and collaborators are planning will allow assessment of changes in the first two years after implementation of protection as well as recommendation for future monitoring. We are partnering with MARE in the development of a deepwater baseline for the northern portion of California. On this project we will provide fish sizing support, species identification oversight, methods refinement and statistical analysis. Tasks Requested of MLML for North Coast ROV Surveys include:

1) Video training (spp. ID, protocols)

2) Assistance in Quality Control of Database

3) Video Lab Work

    Review still photos to ID Fish

    Review spp ID of other reviewers

    Video processing of selected transects to calibrate observations of MARE staff

    Stereo sizing of fish

4) Work at Sea

5) Data Analyses/ report writing

Summary of Project Activities Completed to Date

Overview of Project Year __ Activities, including progress towards meeting goals & objectives

In this project period, we provided survey design assistance, training, and quality control service. Initially, we worked with Dirk Rosen and Andy Lauerman of MARE to design ROV surveys of north coast MPAs. Then we planned and conducted specialized software training for stereo camera calibration and data collection (using SeaGIS EventMeasure and CAL software). We assisted in developing customized data collection techniques to be applied to North Coast MPA requirements. We developed and conducted flatfish identification training for key MARE personnel. This included personal instruction as well as supplying reference material such as a custom PowerPoint flatfish identification series and reference list. As part of this training, we reviewed still photos and provided identification verification of fishes that were used by data collectors. After the summer surveys, we participated in four meetings with MARE personnel to review survey design and results. Also, we reviewed video sent to us by MARE staff and provided visual keys for distinguishing among a variety of species. We began measuring fish using stereo camera software.

MPA Baseline Program Annual Report

Highlights from project progress so far, such as successes achieved, new collaborations or partnerships, or interesting stories from the past year that may be suitable for a blog post or other media venue

See annual report provided by MARE

Description of any unforeseen events and substantial challenges, and resulting effects on project activities and progress. Please indicate any issues that may affect other PI's or require coordination with other Baseline partners (e.g., ME, DFG, Sea Grant).

See annual report provided by MARE

Data status (i.e., paper/raw format or digitized; if digitized, what format?)

MARE controls the data

Activities Planned for following Project Year __ (if applicable) – *Please describe remaining work and approximate timelines for completing that work, including any anticipated budget variances necessary to complete the project.*

Year 2 of this project will be very similar to Year 1. Tasks Requested of MLML for North Coast ROV Surveys include:

1) Video training (spp. ID, protocols)

2) Assistance in Quality Control of Database

3) Video Lab Work

Review still photos to ID Fish

Review spp ID of other reviewers

Video processing of selected transects to calibrate observations of MARE staff

Stereo sizing of fish

4) Work at Sea

Project Personnel – *Please indicate additional project personnel involved in your MPA baseline project, including students and volunteers, or additional PI contact information if necessary, as well as the nature of their assistance in the project project.*

	Students Supported	*Student Volunteers*	*Nature of Assistance*
K-12			
Undergraduate			
Masters			
PhD			

Number of other Volunteers not counted above and the nature of their assistance in the project:

See MARE annual report

Additional PI contact info not listed on first page:

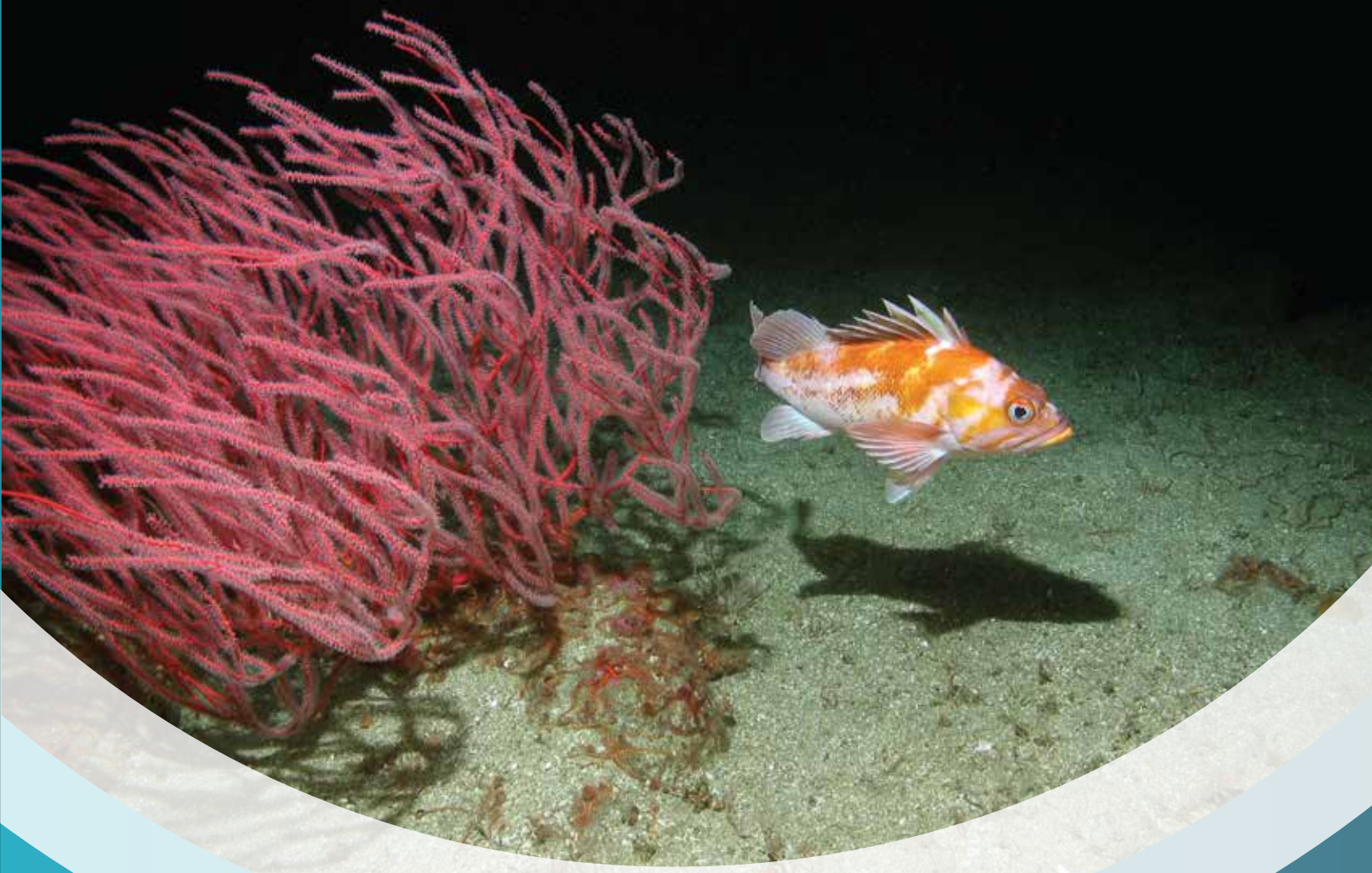
Cooperating Organizations and Individuals - *Please list organizations or individuals (e.g., federal or state agencies, fishermen, etc.) that provided financial, technical or other assistance to your project since its inception, including a description of the nature of their assistance.*

Name of Organization or Individual	*Sector (City, County, Fed, private, etc.)*	*Nature of cooperation (If financial, provide dollar amount.)*

Project Outputs and Materials: *Please provide any other project-relevant information, such as descriptions of attached materials, media coverage your project has received, presentations, publications, images etc.*

MARINE APPLIED RESEARCH AND EXPLORATION

EXPLORE. DISCOVER. PROTECT.



2014 ANNUAL REPORT

11 YEARS LATER

EXCITING NEWS FROM THE CHANNEL ISLANDS MARINE PROTECTED AREAS!

ILLUMINATING OCEAN WILDERNESS TO INFORM
SCIENCE-BASED SOLUTIONS FOR A HEALTHY AND SUSTAINABLE FUTURE

MARE is a nonprofit 501c3 organization founded in 2003 that uses science-based marine conservation efforts to help protect and restore the ocean's invaluable, yet threatened resources.

Using cost-effective and innovative deepwater robotic technology and data analysis expertise, MARE assesses changes in marine life and habitats over time to inform ocean management and support wild sustainable fisheries for future generations.

Message from the **Executive Director**

MARE explored more seafloor in 2014 than ever before. We began our survey season in the Santa Barbara Channel Islands and ended up on the rugged North Coast of California. MARE has now surveyed all four of the MPA regions, from the Mexican to Oregon borders.

This year, MARE introduced our newest technology, the BATFish, rounding out our fleet and suite of capabilities. The BATFish is easily transported and provides exceptionally cost-efficient broad area visual surveys. The increased diversity of our fleet of four submersibles enables MARE to capture video and data appropriate to the needs of individual projects.

With many unprecedented threats, our oceans are more vulnerable than ever. As we move into 2015, your support and partnership will help us impact decisions to ensure healthy oceans with wild fish into the future. Thank you for joining our journey to illuminate the unknown ocean and inspire others.

We could not do it without you!

Best wishes,

Dirk Rosen

MARE's **Collaborative Approach**

Partnerships are central in effectively addressing the threats facing our oceans. Working with key partners such as The Nature Conservancy, Moss Landing Marine Laboratories, NOAA, California Department of Fish and Wildlife and others, is vital to achieving our mission.

MARE always seeks to deepen existing relationships and develop new partnerships with funders, NGOs, scientists, fishing communities, academic institutions, and other groups with aligned goals.

Let's expand our impact together!

MARE Technology
Our Window to the Deep

MARE's technology allows us to reach beyond other methods of data collection. Our fleet of vehicles collects data across depths and degrees of fidelity, offering a cost-effective and agile approach to filling critical ocean information gaps.

DATA COLLECTION CAPABILITIES

SEA LEVEL

UP TO 100 METERS
Benthic Assessment TowFish (BATFish)
Weighing just 120 lbs., this hydrodynamic towsled is an economical broad area visual survey tool. Designed to be operated from a small boat (i.e. 25 ft.) with minimal crew.

UP TO 250 METERS
Hammerhead Remotely Operated Vehicle (ROV)
Our ROV 'lite' is used for imaging and data collection of marine habitat and biological information for scientific and monitoring purposes.

UP TO 300 METERS
Stereo Video Lander
Our economical prospecting tool with stereo sizing and 360° camera panning capabilities.

UP TO 1,000 METERS
Beagle Remotely Operated Vehicle (ROV)
Our most robust ROV is used for detailed ocean imaging, data and sample collection. Slated for 2015 upgrades, this ROV will soon have panoramic viewing and more power.

DEEP SEA

Opportunities for the Future

California's network of marine protected areas (MPAs) continues to gain worldwide recognition. MARE is well positioned to expand our reach with technologies and methods that are replicable around the world. We plan to inform better science-based management and decision-making in the Gulf of Maine, the Eastern Seaboard, and parts of Europe. Furthermore, the addition of the lightweight **BATFish** and updates to the powerful **Beagle ROV** are opening a myriad of possible applications.

Why MARE Goes Deep

Oceans are the last and greatest unexplored wilderness on the planet and inspire a sense of wonder and curiosity. MARE encounters something new during every expedition, which helps us better understand the world we live in. Many species vital to our global fisheries live beyond conventional SCUBA depths. MARE's work exploring deepsea marine life is essential to giving us a more complete picture of our oceans and enabling informed conservation and management decisions.

Exciting Observations from **MARE's Return to the Channel Islands**

In 2003, California established a network of marine protected areas (MPAs) around the northern Channel Islands. These were the first in the state's larger network of 124 MPAs that span the entire 1,100-mile coastline from Mexico to Oregon. California's network is the first of its kind and is one of the most progressive marine conservation efforts in the world. This investment creates hope MPAs can help protect and restore ocean health.

MARE helped pioneer this exciting new era by conducting the original MPA baseline surveys, between 2004-2009. In August 2014, MARE and its partners spearheaded a self-funded effort to return to the Channel Islands and successfully re-surveyed all ten historic sites. We will return to these areas again in August 2015.

Some exciting preliminary observations were:

- Significant increases in Gopher, Copper, and Vermilion rockfish seen at Gull Island State Marine Reserve;
- Hundreds of cowcod rockfish, an overfished and listed Species of Concern, were observed at the Footprint MPA – more than we have seen in all other surveys combined!
- Vast amounts of baby rockfish were present at nearly every MPA site! This is an encouraging sign for the future.

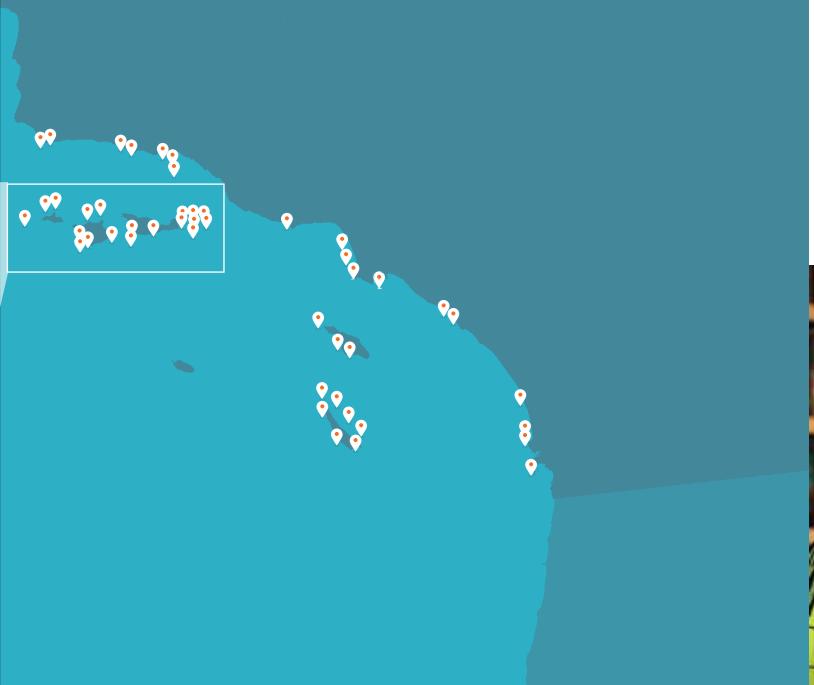
Having eyes on the seafloor is vital to documenting the success of these protected places. Observations such as these reinforce the important role of assessments and offer insights into what we might expect from other MPAs here and around the world.

Cover: Copper Rockfish (*Sebastes caurinus*) with a Red Gorgonian (*Lophogorgia chilensis*); Back: Giant Pacific Octopus (*Enteroctopus dofleini*)
This spread: Lingcod (*Ophiodon elongatus*) , Pacific Electric Ray (*Torpedo californica),* Purple Gorgonian (*Eugorgia rubens*) and Vermillion Rockfish (*Sebastes miniatus*)

"California MPAs were designed to function as a network, and perform greater than the sum of their parts, by using prevailing currents to flow larval young 'downstream' to the next reserve and surrounding fished areas.

MARE's expedition to assess the changes in MPAs over time is essential to understanding if the network is working in the ways in which it was intended."

Dr. Steve Gaines, Dean
University of California
Santa Barbara Bren School of
Environmental Science
and Management



Achievements and Highlights
MARE's Year in Review

Deepsea Coral Surveys: The Acid Test

In August, MARE explored deepsea corals and sponges in the waters around the Channel Islands with Dr. Peter Etnoyer and Leslie Wickes of NOAA. The naturally occurring, extremely low pH waters in the region make this a challenging environment for marine life to grow and thrive, yet they persist here. Studying corals in this living laboratory may provide us with key insights about how species will adapt to climate change and ocean acidification in our "future ocean."

Protecting Ocean Wilderness: Statewide MPA Monitoring

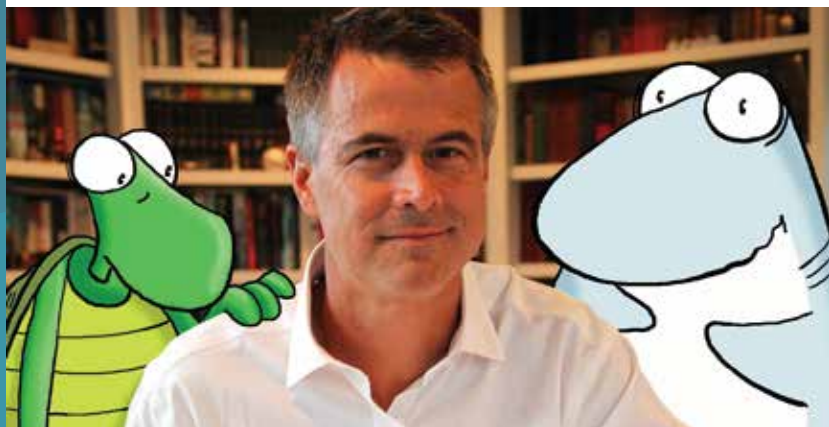
In conjunction with the California Department of Fish and Wildlife, MARE conducted deepwater ROV assessments of critical species and habitats in high priority areas from San Diego to Crescent City. MARE also began baseline monitoring in California's newest and final North Coast MPA region, which stretches from Point Arena to the Oregon border. We are excited to be the first to assess these unexplored deepwater areas!

Deep Blue Soiree

In May, world-renowned scientist, Dr. Steve Gaines, kicked off MARE's return to the Channel Islands with an inspiring presentation on the unique aspects of the Island waters. He also highlighted MARE's role in helping measure whether the network is achieving its intended goals.

Second Annual Sustainable Fish Dinner

In October, MARE celebrated the ocean with Jim Toomey, creator of Sherman's Lagoon comic strip, along with 120 ocean enthusiasts at our second annual Sustainable Fish Dinner at the Dolphin Club in San Francisco. Thank you to our guests and sponsors for making this event a success!



MARE Awarded Grants for ROV Upgrades

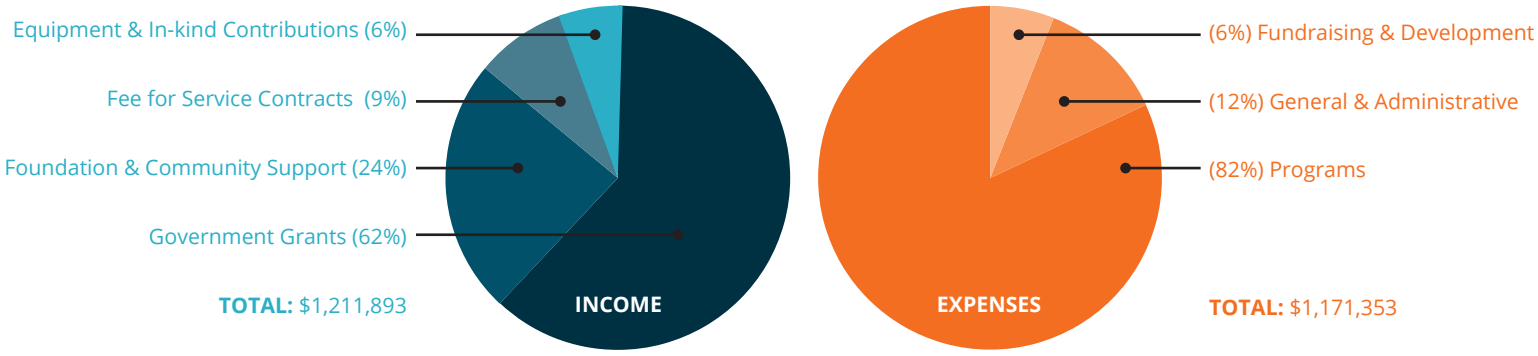
MARE was recently awarded Technology Challenge grants totaling $55,000. This funding will be used to improve the Beagle ROV's capabilities.

New real-time panoramic HD video and stereo imaging will produce wider angle and higher quality video. Additional performance enhancements will improve mobility in deeper water and stronger currents, giving us access to new areas.

Our thanks to the **Giles W. and Elise G. Mead Foundation** and the **Dean Witter Foundation** for this opportunity.

2013 –2014 MARE STATEMENT OF ACTIVITIES

NOV. 1, 2013 - OCT. 31, 2014
CHANGE IN NET ASSETS: $40,540



CONTACT US

MARE
1230 Brickyard Cove Road, #101
Richmond, CA 94801
Tel: 510-232-1541
Email: info@maregroup.org
www.maregroup.org

BOARD OF DIRECTORS

MARE Partners & Donors **JULY 31, 2013 - NOVEMBER 30, 2014**

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California Department of Fish & Wildlife
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California Ocean Science Trust
California Sea Grant
Channel Islands National Marine Sanctuary
Dolphin Club
F/V Donna Kathleen & the Maricich Family
F/V Miss Linda
Harvard Business School Community Partners
Monterey Bay Aquarium Research Institute
Monterey Bay National Marine Sanctuary
Moss Landing Marine Laboratories
The Nature Conservancy
NOAA Deep Coral Ecology Laboratory

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Jeannie Blaustein
Donald Brody
Community Bank of the Bay
Ron Clausen
Frederick & Patricia Davenport
Peter Davis
Don Disraeli
Ferguson Family Charitable Fund
Jeff Ludlow
Laura Marlin
Dirk & Pam Rosen
Martin Lawrence Rosen Fund
Jay Tustin
Peter & Karen Weber
Marjorie Winkler

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