



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE

Monterey Bay National Marine Sanctuary
99 Pacific Street, Bldg 455A
Monterey, CA 93940

November 29, 2016

Dr. Chris Scholin
Monterey Bay Aquarium Research Institute
7700 Sandholdt Road
Moss Landing, CA 95039

Dear Dr. Scholin:

The National Oceanic and Atmospheric Administration, Office of National Marine Sanctuaries (ONMS) has approved the issuance of permit amendment number MBNMS-2007-030-A9 to conduct activities within Monterey Bay National Marine Sanctuary (MBNMS or Sanctuary) for research purposes. This amendment supersedes all previous permits or amendments for this activity. Activities are to be conducted in accordance with the permit application and all supporting materials submitted to the sanctuary, and the detailed terms and conditions of permit number MBNMS-2007-030-A9 (enclosed).

You are responsible for reviewing and understanding all terms and conditions of this amendment. However, the changes made in this amendment from the previous permit or amendment can be summarized as follows:

- Amendment A9 includes 2 new bioluminescence sensors on MARS Camera System- The Photographic Benthic Observing System (PhoBOS), a new project "Geodetic and Seismic Sensor Module (GSSM) Test on MARS", and deploying and recovering a "mini" node as part of MARS Node Maintenance, allowing for alteration of the seafloor.

We have found that previous annual meetings between MBNMS and MBARI key staff are helpful, and we would like these to continue. Annual meetings allow all permitting agencies to receive full and detailed briefings on any planned or proposed projects specifically related to the MARS cable. Please work with Sophie De Beukelaer of my staff to schedule meetings for the upcoming 2017 and 2018 seasons.

This permit is not valid until signed and returned to the ONMS. Retain one signed copy and carry it with you while conducting the permitted activities. Additional copies must be



signed and returned, by either mail or email, to the following individuals within 30 days of issuance and before commencing any activity authorized by this permit:

Sophie De Beukelaer
Permit Coordinator
Monterey Bay National Marine Sanctuary
99 Pacific Street, Bldg 455A
Monterey, CA 93940
Sophie.Debeukelaer@noaa.gov

National Permit Coordinator
NOAA Office of National Marine Sanctuaries
1305 East-West Highway (N/ORM6)
SSMC4, 11th Floor
Silver Spring, MD 20910
onmspermits@noaa.gov

Your permit contains specific terms, conditions and reporting requirements. Review them closely and fully comply with them while undertaking permitted activities.

If you have any questions, please contact Sophie De Beukelaer at 831-647-1286. Thank you for your continued cooperation with the ONMS.

Sincerely,

A handwritten signature in black ink, appearing to read "Paul Michel", with a long horizontal flourish extending to the right.

Paul Michel
Superintendent

Enclosure



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Monterey Bay National Marine Sanctuary
99 Pacific Street, Bldg 455A
Monterey, CA 93940

MONTEREY BAY NATIONAL MARINE SANCTUARY RESEARCH PERMIT

Permittee:

Dr. Chris Scholin
Monterey Bay Aquarium Research Institute
7700 Sandholdt Road
Moss Landing, CA 95039

Permit Number: MBNMS-2007-030-A9

Effective Date: November 29, 2016

Expiration Date: December 31, 2018

Project Title: Monterey Accelerated Research System (MARS) supplemental research projects not analyzed in the EIR/EIS

This permit is issued for activities in accordance with the National Marine Sanctuaries Act (NMSA), 16 USC §1431 *et seq.*, and regulations thereunder (15 CFR Part 922). All activities must be conducted in accordance with those regulations and law. No activity prohibited in 15 CFR Part 922 is allowed except as specified in the activity description below.

Subject to the terms and conditions of this permit, the National Oceanic and Atmospheric Administration (NOAA) Office of National Marine Sanctuaries hereby authorizes the permittee listed above to conduct research activities within Monterey Bay National Marine Sanctuary (MBNMS or Sanctuary). All activities are to be conducted in accordance with this permit and the permit application received November 14, 2016. The permit application is incorporated into this permit by reference; provided, however, that if there are any conflicts between the permit application and the terms and conditions of this permit, the terms and conditions of this permit shall be controlling.

Permitted Activity Description:

The following activities are authorized by this permit:

The installation, monitoring, use, continued placement, maintenance, repair, and removal of scientific equipment upon the seafloor for use in conjunction with the existing Monterey Accelerated Research System (MARS) cable. The following projects, (not described in the original EIR/EIS for the cable project) are approved herein:

- Eye-In-The-Sea (EITS)
- Benthic Rover
- Sedimentation Sensor/Time-Lapse Camera System
- Deep-Sea Environmental Sample Processor (D-ESP)
- Free Ocean CO₂ Enrichment (FOCE) System
- A Smart Sensor Web for Ocean Observation: System Design, Modeling, and Optimization
- Monitoring Pelagic Biomass Fluxes in Monterey Bay



- Technology Development for Geophysical Monitoring at Cabled Seafloor Observatories
- Acoustic Communications System for Cabled Observatories
- Monterey Ocean Bottom Broadband (MOBB) Seismometer
- Laboratory for the Ocean Observatory Knowledge Integration Grid Seismometer System
- MARS Camera System- The Photographic Benthic Observing System (PhoBOS) plus sensors, including bioluminescence sensors
- Sensors Powered by Benthic Microbial Fuel Cells
- Development of Chemical Sensors and In-Situ Calibrations: Enhanced Monitoring and Measurement of pH and Redox in Diffuse Flow Hydrothermal Systems
- Methane Hydrates and Microbial Growth
- MARS Node Maintenance which includes deploying and recovering a “mini” node
- Passive Acoustic Sensing in Foraging Ecology Research
- Geodetic and Seismic Sensor Module (GSSM) Test on MARS

Permitted Activity Location:

The permitted activity is allowed only in the following location(s):

These projects will be connected to the trawl resistant science node at the end of the MARS cable, or conducted within the vicinity of the cable.

No further disturbance of the cultural or natural resources of the sanctuary is allowed. In addition to the terms above, the following terms and conditions apply to this permit:

Special Terms and Conditions:

1. All authorized activities may be conducted from November 29, 2016 through December 31, 2018. All equipment shall be removed no later than the expiration date of this permit. The permittee may request an amendment from the MBNMS Superintendent in advance of this expiration date, to extend the effective date of this permit.
2. Permitted activities shall be limited to the following:
 - a. Installation, maintenance, and recovery of individual scientific instruments, moorings, and anchors, related to MARS cable research projects, including instrumentation described under the “Permitted Activity Description” section of this permit.
 - b. Discharge of liquid carbon dioxide (CO₂) combined with seawater, to be released in quantities of approximately 5 to 20 liters per day, for a total volume of carbon dioxide not to exceed 400 liters per calendar year. An equal amount of non-toxic chemicals or tracer dyes may be released as part of this experiment. Unlikely discharge of small quantities (~100 ml) of hydrocarbon gas and/or oil.
 - c. Seabed alteration, including the operation of scientific equipment upon the seafloor and coring of the seabed to collect benthic samples; sediments, and non-commercial rocks.

- d. The permit holders shall contact the MBNMS Permit Coordinator (sophie.debeukelaer@noaa.gov) 14 days prior to conducting any project modifications or future research projects that may be prohibited by MBNMS regulations, and shall receive written approval prior to conducting operations, to ensure these new activities meet the intent of Special Condition 2a through 2c above
3. All equipment authorized for installation under this permit (including, but not limited to, anchors weighing less 500 pounds, mooring lines, tackle, buoys, individual instruments, batteries, and platforms) shall be removed when such equipment is no longer in use.
4. The equipment and support structures authorized by this permit shall be used in accordance with the methods and objectives identified in the permit application and Special Conditions included here. Disturbance of any other sanctuary resources is prohibited.
5. No activity authorized by this permit shall disturb or impact any historical or marine archaeological resources of the Sanctuary. If historical or marine archaeological resources are encountered at any time, the permit holders shall cease all further activities under this permit and immediately contact the Sanctuary Superintendent.
6. All equipment authorized for installation under this permit shall be removed when such equipment is no longer in use, or sooner if directed by the MBNMS Superintendent if such equipment is causing or may cause unacceptable harm to sanctuary resources or qualities. Intentional abandonment of equipment or any item is prohibited. In the event that any mooring or equipment are damaged or dislocated due to weather or any other cause, the permittee shall use all available means to locate and recover the affected item(s). The location and description of any equipment abandoned or lost in the sanctuary for any reason shall be noted in the summary report with an explanation why the equipment was not recovered.
7. All items (e.g. batteries, data recorders, etc.) removed from instrument packages attached to mooring arrays or platforms must be carried to the surface and stored or disposed of properly ashore. At no time may batteries be exposed to the sea or discarded within the sanctuary.
8. If contacted by MBNMS Sanctuary Integrated Monitoring Network (SIMoN) staff, the permittee agrees to provide project metadata from these permitted activities to the MBNMS Sanctuary Integrated Monitoring Network via a web-based interface. The permittee shall provide the information to the MBNMS within three (3) months of the request date. See <http://www.sanctuariesimon.org> for more information.
9. The permittee shall submit an annual report of all activities conducted under this permit to the MBNMS Permit Coordinator no later than **November 15th of each year that this permit is valid.** The report should include information regarding daily activities such as location of research activities, techniques employed, problems encountered, installation and removal techniques employed; equipment maintenance, loss, or replacement;

archaeological disturbance; discharge of expendable devices; accidental or unauthorized discharges/deposits of matter into the Sanctuary; or any other significant occurrence throughout the permit period, etc. The annual report shall include a synopsis of research results to date, as well as any proposed future projects. In addition, MBARI shall deliver a synthesized presentation to key MBNMS staff each year this permit is valid. This presentation should highlight the previous year's research as well indicate any upcoming projects that would require consideration under the MBNMS permit.

1. This activity may also require permission from other agencies. The enclosed permit is not valid until all other necessary permits and/or authorizations are obtained. Any direct or incidental harassment of marine mammals requires a permit from the National Marine Fisheries Service (contact Penny Ruvelas, the Long Beach Office Branch Chief of the Protected Resources Division, at 562-980-4197 or at Penny.Ruvelas@noaa.gov) and/or U.S. Fish and Wildlife Service (contact Douglass Cooper at 805-644-1766). Direct or incidental harassment of seabirds requires a permit from the U.S. Fish and Wildlife Service. Deployment of mooring or surface buoys may require authorization from the US Coast Guard (contact Rachel Zamora at (510) 437-2984 or rachel.c.zamora@uscg.mil). Research conducted within California state waters or California state marine protected areas (MPA) may require permission from the California Department of Fish and Wildlife (contact Brian Owens at brian.owens@wildlife.ca.gov). The use and/or occupation of state-owned lands may require a lease or other authorization from the California State Lands Commission (contact Drew Simpkin at Drew.Simpkin@slc.ca.gov if working in Monterey County and/or George Asimakopoulos at george.asimakopoulos@slc.ca.gov if working North of Monterey County).
10. The permittee may be required to pay any or all expenses associated with the locating of and/or removal by NOAA or its designee of any equipment that is not recovered by the permittee.

General Terms and Conditions:

1. Within 30 (thirty) days of the date of issuance, the permittee must sign and date this permit for it to be considered valid. Once signed, the permittee must send copies, via mail or email, to the following individuals:

Sophie De Beukelaer
Permit Coordinator
Monterey Bay National Marine Sanctuary
99 Foam Street, Bldg 455A
Monterey, CA 93940
Sophie.Debeukelaer@noaa.gov

National Permit Coordinator
NOAA Office of National Marine Sanctuaries
1305 East-West Highway (N/ORM6)
SSMC4, 11th Floor
Silver Spring, MD 20910
onmspermits@noaa.gov

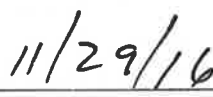
2. It is a violation of this permit to conduct any activity authorized by this permit prior to the ONMS having received a copy signed by the permittee.

3. This permit may only be amended by the ONMS. The permittee may not change or amend any part of this permit at any time. The terms of the permit must be accepted in full, without revision; otherwise, the permittee must return the permit to the sanctuary office unsigned with a written explanation for its rejection. Amendments to this permit must be requested in the same manner the original request was made.
4. All persons participating in the permitted activity must be under the supervision of the permittee, and the permittee is responsible for any violation of this permit, the NMSA, and sanctuary regulations for activities conducted under, or in junction with, this permit. The permittee must assure that all persons performing activities under this permit are fully aware of the conditions herein.
5. This permit is non-transferable and must be carried by the permittee at all times while engaging in any activity authorized by this permit.
6. This permit may be suspended, revoked, or modified for violation of the terms and conditions of this permit, the regulations at 15 CFR Part 922, the NMSA, or for other good cause. Such action will be communicated in writing to the applicant or permittee, and will set forth the reason(s) for the action taken.
7. This permit may be suspended, revoked or modified if requirements from previous ONMS permits or authorizations issued to the permittee are not fulfilled by their due date.
8. Permit applications for any future activities in the sanctuary or any other sanctuary in the system by the permittee might not be considered until all requirements from this permit are fulfilled.
9. This permit does not authorize the conduct of any activity prohibited by 15 CFR § 922, other than those specifically described in the "Permitted Activity Description" section of this permit. If the permittee or any person acting under the permittee's supervision conducts, or causes to be conducted, any activity in the sanctuary not in accordance with the terms and conditions set forth in this permit, or who otherwise violates such terms and conditions, the permittee may be subject to civil penalties, forfeiture, costs, and all other remedies under the NMSA and its implementing regulations at 15 CFR Part 922.
10. Any publications and/or reports resulting from activities conducted under the authority of this permit must include the notation that the activity was conducted under National Marine Sanctuary Permit MBNMS-2007-030-A9 and be sent to the ONMS officials listed in general condition number 1.
11. This permit does not relieve the permittee of responsibility to comply with all other federal, state and local laws and regulations, and this permit is not valid until all other necessary permits, authorizations and approvals are obtained. Particularly, this permit does not allow disturbance of marine mammals or seabirds protected under provisions of the Endangered Species Act, Marine Mammal Protection Act, or Migratory Bird Treaty Act. Authorization for incidental or direct harassment of species protected by these acts

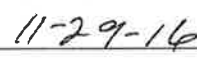
must be secured from the U.S. Fish and Wildlife Service and/or NOAA Fisheries, depending upon the species affected.

12. The permittee shall indemnify and hold harmless the Office of National Marine Sanctuaries, NOAA, the Department of Commerce and the United States for and against any claims arising from the conduct of any permitted activities.
13. Any question of interpretation of any term or condition of this permit will be resolved by NOAA.

Your signature below, as permittee, indicates that you accept and agree to comply with all terms and conditions of this permit. This permit becomes valid when you, the permittee, countersign and date below. Please note that the expiration date on this permit is already set and will not be extended by a delay in your signing.



Dr. Chris Scholin
President and CEO
Monterey Bay Aquarium Research Institute



Paul Michel
Superintendent
Monterey Bay National Marine Sanctuary