

WeeklyReport

Engineering Weekly Report 6/12/2025 - 6/19/2025

<https://docs.mbari.org/internal/projects/Engineering/Weeklies/2025/>

Executive Council Notes

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Individual Activities

- Michael Anderson
- Kevin Barnard
 - Out of Office
 - May 8, 2025 - May 9, 2025 – vacation
 - May 22, 2025 - May 23, 2025 – vacation
 - Jun 3, 2025 - Jun 10, 2025 – vacation
 - Jun 11, 2025 - Jun 15, 2025 – CVPR
 - Jun 23, 2025 - Jun 26, 2025 – HPE Discover
 - Aug 7, 2025 – vacation
 - Aug 11, 2025 - Aug 12, 2025 – vacation
- Francois Cazenave
 - 902106 - Niobicon-Based AUV Docking Development
 - Writing proposal
 - Assembling Brizo and various docking components
 - Meeting with Don Peters
 - 902204 - Scalable Robotics
 - Building Ventana mapping drawer
- Danelle Cline
 - Out of Office
 - Vacation 5/26-5/30
- Duane Edgington
 - 901502 - Ocean Soundscape
 - Welcome Intern Fanny Oppenheimer! Team discussions.
 - 901902 - Unoccupied Aerial Vehicles for Science, Operations and Outreach
 - Welcome Intern Tim Sananikone! Team discussions.
 - Out of Office
 - Doctor appt June 9; recovery at home June 10-11
 - Dentist appt Jun 18, 2025 to complete Jul 2, 2025
- Jon Erickson
- Kevin Gomes
- Andy Hamilton
- Kent Headley
 - 300057 - Mooring Maintenance
 - updated OASIS firmware image for M1 202507 deployment (used latest image with GPS and metsys updates, from 2023)
 - 901007 - Benthic Biology & Ecology

- Figured out complete build and programming process for MRS/BRS chamber controller firmware. It's a two step process involving a bootloader as well as firmware image load. Building the code relies on some special cables and old Windows software. I can now build and install both the bootloader and firmware, and am putting together some documentation.
- 901101 - Seafloor Mapping
 - Fixed issue in mbtrnpp in Ubuntu 24 build found by Dave C. The symptom was a SIGABRT raised by snprintf (actually snprintf_chk). Turns out `_FORTIFY_SOURCE` is enabled by default on Ubuntu24. Fortified source is a security feature to detect things like buffer overflows. Depending on how it is configured (as well as things like optimization, `GNU_SOURCE`, etc.), it provides compile time warnings and may replace various string and memory functions with it's own ostensibly more secure versions - e.g. `snprintf_chk` - that check for risky conditions.

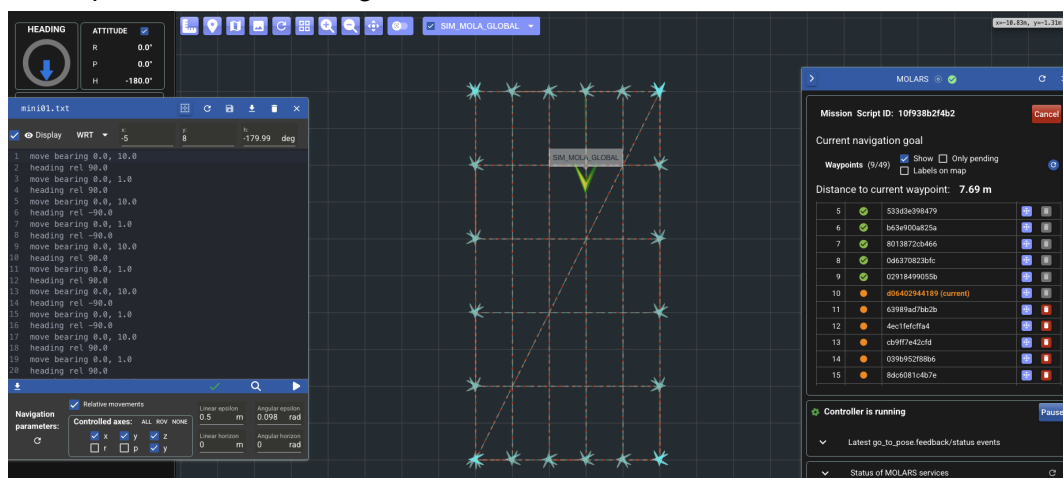
In this case, it raised SIGABRT at run time due to an invalid value for the buffer length argument passed to `snprintf`. Though the value was incorrect (+1 too large), the operation would not have overflowed the buffer. The fortified version of `snprintf` should have been able to determine that, so in that sense it's a false positive. It's concerning that it may bring a program down without warning; while it's a potentially useful security feature, it should be used carefully in the context of autonomous systems. It can be disabled/configured using the `-D_FORTIFY_SOURCE` compiler flag.

- 902204 - Scalable Robotics
 - Issued pull request for file naming changes proposed by Bastian M.
 - Notified Sebastian about changes to mbtrnpp (used for m1stream)
- Overhead
 - hiring: internal tech interview
 - job description updates
 - misc admin
- Out of Office
 - Jul 14-31 (vacation)
- Rich Henthorn
 - 902305 - Event Detection Using the Sedimentation Event Sensor
 - Recovery prep
 - 902401 - Geo-Sense
 - Norway deployment prep and support
 - Overhead
 - Rover tech transfer docs
 - Out of Office
 - June 19 - Rachel Carson
 - June 30 - July 7: Vacation, email contact
 - Aug 7 - Aug 11: Vacation, email contact
- Akshay Hinduja
 - 901809 - Deep Sea Bioinspiration
 - Refactored triton camera driver to be more modular
 - Fixed bugs with saving images in different formats
 - Added offset configuration and set cropping for 2K res for all 3 cameras
 - Added video recording in h264 and h265. Files are chunked as per config
 - Halfway through setting up rtsp streaming of video
 - TODO: Finish RTSP streaming, add lcm broadcast
 - 902204 - Scalable Robotics
 - Finished the Pose Graph manager module
 - Finished integration script to run localization

- Testing on parameter tuning
 - Added visualization of trajectories
 - Working on fixing bugs with ground truth trajectories
 - TODO: Final map visualization, lcm channel broadcast, test with larger datasets, MBSys→DB
- Out of Office
 - July 3 - July 8 Vacation
- Brett Hobson
- Irene Hu
 - 901805 - Coastal Biogeochemical Sensing Program
 - Working with Joe on getting lamp attached to mini ISUS baseboard for first prototype build
 - 902305 - Event Detection Using the Sedimentation Event Sensor
 - Compiling notes and rewatching videos to put together turnaround document; various handoffs from Paul
 - Overhead
 - Working with Erik on ORP sensor for Dorados. Connected sensor to modified mcap for some preliminary measurements
 - Random help with UAVs
 - Out of Office
 - 6/27-7/4: vacation
- Scott Jensen
 - 706008 - READI-Net
 - Lots of work around building up the first article model
 - Most wiring is done
 - Fluidics have been plumbed
 - 808015 - Monitoring McCloud
 - Monitoring the power stations
 - 901205 - ESP SURF Center
 - Support of upcoming 3g deployment and issues with the instrument
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Meetings and meetings about the battery
 - Landing on an external battery for low SoC recovery
 - Out of Office
 - 7/3-7/25 vacation
 - 7/17-22/25 vacation
- Brent Jones
 - Out of Office
 - Vacation
- Chad Keczy
 - Out of Office
 - Out of office on Fridays
- Brian Kieft
 - Out of Office
 - 05/27-06/02 (MST)
 - 6/16-24 (MST)
 - 9/15-30 (UTC+2)
- Denis Klimov
 - 901809 - Deep Sea Bioinspiration

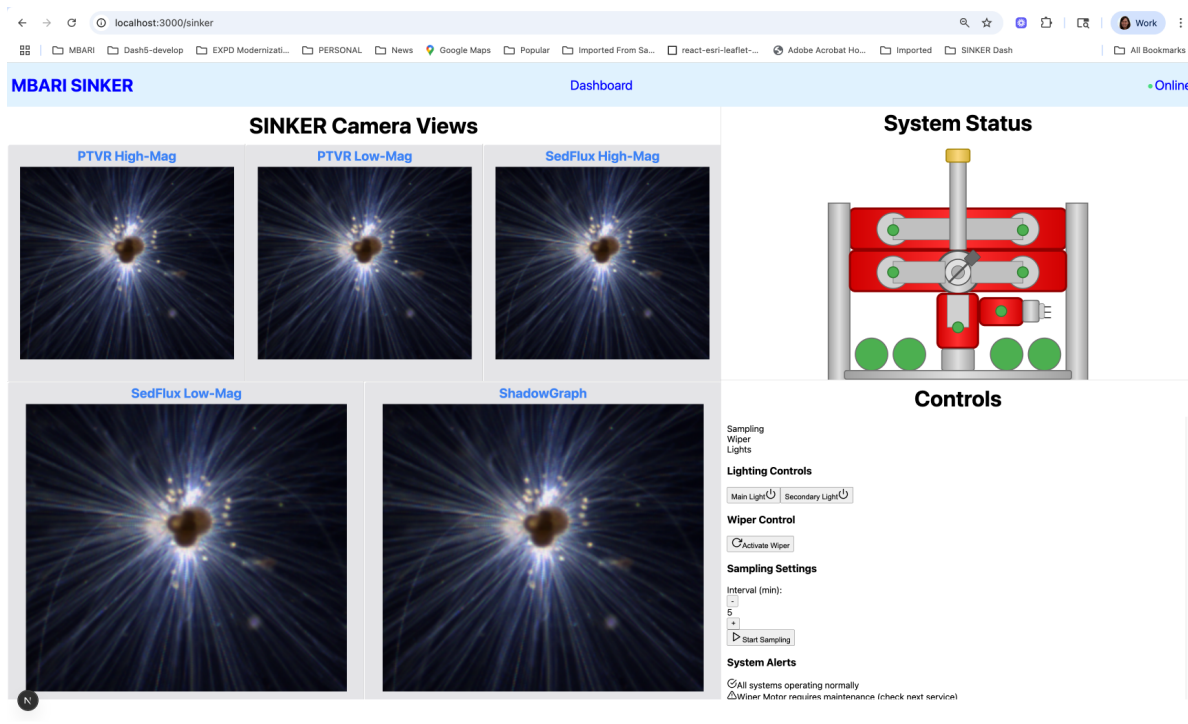
- Looking at the conditions in the lab A284, how to configure lab A247, and what projects could be moved there. We are looking to temporarily use lab A247 as is with deep cleaning, before the renovation could be completed in 2026.
- 902004 - Planktivore
 - The battery pack for benthic deployment was charged to the max last week, and should be coming back this week.
- 902401 - Geo-Sense
 - Configuring bitter end/ Black Hole in the Linden cable spool for the Norway deployment.
- Overhead
 - BSO activity: looking at the incident of a battery exposure to the seawater during ASV catamaran running aground; and what to do with exposed LiPo batteries
- Out of Office
 - Vacation 6/11/2025-6/16/2025
- Eric Martin
 - Out of Office
 - Jun 10, 2025 - Jun 22, 2025 : Vacation
- Thom Maughan
 - Out of Office
 - Vacation: June 16 to July 8
- Mike McCann
 - 901101 - Seafloor Mapping
 - Working on poster for ESIP
 - Working on my part of the proposal text
 - 901910 - Plankton Taxonomic Groups from AUVs
 - Migrated auv-python from Poetry to uv and from python3.10 to python3.12
 - Reprocessed Dorado archive with revamped auv-python code
 - Using stoqs_all_dorado_t to test the reprocessed Dorado biolume data
 - Fixing minor issues as we identify them and will be reloading stoqs_all_dorado_t again
 - 902101 - LRAUV Technology Development
 - Wrote a MacGyver fix to get ESP Cartridge 15 data into [stoqs_ecohab_april2023](#)
 - 902403 - Expedition DB Modern
 - Project meeting
 - Overhead
 - Edited internal ships calendar with changes requested by Matt
 - Out of Office
 - 23-26 June – Vacation
 - 21-25 July – ESIP Summer Meeting
 - 28 July - 8 August – Remote work
 - 10-14 August – SIGGRAPH
 - 18 August - 5 September – Vacation
 - 8-13 September – Web3D & Digital Heritage Conference
- Paul McGill
 - 902305 - Event Detection Using the Sedimentation Event Sensor
 - Preparing for recovery cruise
 - Working with Irene and Knute to prepare SES for MARS
 - Overhead
 - Still packing office
 - Out of Office
 - Medical appts all day Tue
- Enoch Nicholson

- Tom O'Reilly
- Mike Risi
 - Out of Office
 - Offsite on Tuesday and Friday
 - March 3 - March 6, 2025 - vacation
 - June 2 - June 6, 2025 - vacation
 - June 16, 2025 - vacation
- Paul Roberts
 - Out of Office
 - June 20 - June 29, Whistler, BC
- Brent Roman
 - Out of Office
 - May 30 – June 23
- Carlos Rueda
 - 901502 - Ocean Soundscape
 - Minor PBP code maintenance.
 - Worked with IS to have an unexpected mount issue fixed on [gizo](#)
 - 901513 - Targeted Sampling by AUVs
 - Some code cleanup after the successful tracking exercise.
 - 902101 - LRAUV Technology Development
 - Dash4 now [4.94.82](#).
 - Dash backend [4.95.31](#).
 - Slowness in backend responses recently noted by some operators turned out to be a denial-of-service (DoS) attack by some mis-configured (on purpose?) bot out there. We have had a standard [robots.txt](#) in place, but the bot simply ignores it. I set up a blocking rule in the proxy server, so any requests from that bot now get an immediate unauthorized response.
 - <https://mbari.slack.com/archives/C4VJ11Q83/p1749863890631179>
 - <https://github.com/scrapy/scrapy/issues/6597#issuecomment-2817396410>
 - 902504 - Scalable Semantic Mapping
 - Dial is now [1.8.2](#), with a key fix in the display of planned missions so it now aligns with the subsequent actual rendering based on notifications from the MOLARS backend.



- Meetings.
 - Out of Office
 - June 30–July 2: vacation
- Karen Salamy
 - 200103 - Core CTD Data - MDUC
 - Updating all new ROV CTD O2 flags to EXPD.
 - 300057 - Mooring Maintenance

- Working with Jared F. to prepare the M1 mooring turn scheduled for July 24, 2025. The system has been moved from the bird cage testing to the dock for testing. Downloads are proceeding.
- 901101 - Seafloor Mapping
 - I am planning to return to work on this project after the M1 and SINKER deployments in mid-July.
- 902306 - SINKER
 - Designed/Developed proto-type GUI for July MARS deployment. The SINKER team liked the design so I will move forward with the build and connection to Danelle's API code when ready. The main push for this deployment will be the ability to view images in RT for the team. I built a temporary schematic drawing for the instrument to try and plug in Alerts and some activation controls. An illustrator will join the team in early JULY and if there is time before the deployment I will try to integrate that schematic into the GUI as well. Controls will be most likely implemented in the next deployment later in the year.



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- 902403 - Expedition DB Modern
 - I am planning to return to work on this project after the M1 and SINKER deployments in mid-July.
- Overhead
 - Some on-line tutorials and meetings.
- Out of Office
 - June 19-20, 2025 - Personal vacation time
 - On-campus 3 days/week (**T, W, TH**). New OFFICE - G106.
- Brian Schlining
 - 500055 - VARS, M3/RS, DSG
 - Working on VARS installation on David Packard as well as updates to Rachel Carson
 - Changes/updates to [Oni](#) for KB development.
 - 901809 - Deep Sea Bioinspiration
 - Looking into merging LRUAV data (from Galene) with video annotations.
 - 902002 - FathomNet
 - Continuing [port from Micronaut to Quarkus](#). Initial port is done. Adding test coverage now.
 - [Fixed image validation processing](#).
 - Out of Office

- Jun 12 - Vacation
 - Jul 21 - 24 - Vacation
 - Aug 11 - 12 - Vacation
 - Aug 18 - 21 - Vacation
- Alana Sherman
 - 901904 - Deep-Sea Coral-Sponge Community Observatory
 - Trying out a 1TB SD card on the Macro camera. Recording lots of video to see if there are any issues are the card fills up.
 - 902208 - Mini ROV Operations
 - Figured out and documented the low-voltage ground fault circuit. When Mini returns from the Arctic, I will update the software to represent the fault in uAmps not counts.
 - 902401 - Geo-Sense
 - Lots of little details to get prepared to ship out the Linden cable to Norway.
 - Went through 2026 proposal and still working on labor estimates
 - Overhead
 - Rewriting job description for EE group positions. Current document is in need of updating.
 - Out of Office
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- George Stern
 - 701147 - MARS O&M IV
 - Meeting with UW and some initial documentation review
 - 902204 - Scalable Robotics
 - Reterminating the fiber tether on mola; still not working after more than 5 attempts representing days of work. The boxfish design seems overly complicated considering most of the pieces are custom machined. Thank you James and Bryan for the help and advice on terminating fiber
 - 902208 - Mini ROV Operations
 - Identified another supply which is currently being sold and might fit power needs; company responded quickly to everything but a request for a quote.
 - 902304 - Piscivore Cam
 - Comparative video testing of the new and old camera
 - Updated and reprinted the chassis to improve access to connectors and fill around inserts and screws
 - Continued to fit check hardware
 - 902306 - SINKER
 - Cable design and build for MARS
- Justin Tucker
 - 300078 - DMO Support - AUV
 - Updates to INS assembly drawings
 - Recovery hook analysis and design
 - 901101 - Seafloor Mapping
 - AUV proposal refinement
 - 6DOF mass and foam updates
 - Housing cost estimates
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Weekly meetings, housing design considerations
 - Overhead
 - ANSYS license evaluation
- Johann Voigtlander
 - 902204 - Scalable Robotics
 - Blueboat electronics re-installed into new hull

- Debugged tailscale connection issue
 - Coordinating plan to confirm old batteries are useable or not
 - Installed VN100 into PoE2 can and confirmed all sensors functional
 - Ordered new connectors and daisy-chained lights
- 902402 - CSEM
 - Drew up engineering drawings for datalogger protective housing to be manufactured
- 902505 - 2025 Arctic Expedition
 - KOPRI medical documents submitted
- Out of Office
 - Dec 16th - Jan 10th - Vacation
 - May 30th - June 5th