Engineering Weekly Report 6/25/2026 - 7/2/2026

https://docs.mbari.org/internal/projects/Engineering/Weeklies/2026/

Executive Council Notes

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Individual Activities

- Michael Anderson
- Kevin Barnard
  - Out of Office
    - Working remotely May 11, 2026 – May 14, 2026
    - MIW May 18, 2026 – May 22, 2026
    - CVPR Jun 1, 2026 – Jun 5, 2026
- Francois Cazenave
- Laura Chrobak
  - Out of Office
    - CVPR Jun 1, 2026 – Jun 5, 2026
- Danelle Cline
  - 901103 - Biodiversity and Biooptics of Zooplankton
    - Working on initializing VSS (Vector Search System) with four augmented velella conaria examples. Next steps are vector search in bulk, similar to how velella were mined in the planktivore archives.
    - De-duplication code to identify individuals in tracked velella
  - 901502 - Ocean Soundscape
    - Oceans abstract on PBP accepted. Thanks to the team for their help with the submission.
    - STM sweeps with Perch2 model optimizing ARI are in place. Thanks to collaborator Franny for cleaning-up the sound annotations. The single 6 and a half minute humpback recording used for testing had 32 unique sound units !
  - 901902 - Unoccupied Aerial Vehicles for Science, Operations and Outreach
    - Oceans abstract on Kelp SAM Coverage accepted
    - Summer intern help and VO
  - 902111 - Carbon Flux Ecology
    - Successfully migrated SINKER log files using rsync with new service account, closing issue #3 (https://github.com/mbari-org/deploy-sinker/issues/3).
    - Advanced Jupyter notebook tutorials for the group, including adding download functionality across media and localizations and mount to CFE lab share.
    - Redeployed mantis with new automated SSL certificate renewal.
  - Overhead
    - Expansion of object storage needed for on-prem annotation server (10 TB), IS ticket pending. Tested Qumulo object as Tator object store; mostly S3 compatible, except ACL and some CORS issues. Minor code revisions needed.
  - Out of Office
    - September 21-24 Oceans Conference, Monterey

- Duane Edgington
    - Out of Office
        - June 10 Medical appointment
        - June 15, 17. 19 Medical Appointment
        - September 21-24 IEEE Oceans Conference Monterey
- Kevin Gomes
    - Out of Office
        - Jun 29 - Jul 1 : Vacation
        - Aug 25-27: Monterey Data Conference
        - Sep 21-24: Oceans conference
- Andy Hamilton
- Kent Headley
    - 902204 - Scalable Robotics
        - Spent Tue-Wed with Blue Boat, working out the Cerulean sonar device discovery and connection protocols, some of which is undocumented, and the folks at Cerulean wouldn't disclose. Wireshark to the rescue, and kudos to Johann for configuring the Blue Boat to accommodate testing.
    - Overhead
        - Proposal reading, labor spreadsheet updates
        - misc admin
    - Out of Office
        - Sep 21-24: Oceans conference
- Rich Henthorn
    - Out of Office
        - June 29 to July 6 - Vacation
        - July 14 to 25 - Caress LASS cruise
        - August 10 to 13 - Vacation
        - August 31 to Sept 3 - Vacation
        - Sept 14 to 18 - Durkin Cruise
- Akshay Hinduja
    - 901809 - Deep Sea Bioinspiration
        - Improvements to the integrated backseat app for tritoncam, mainly in the detector node.
        - Push updates to triton and getting it ready for deployment.
    - 902204 - Scalable Robotics
        - Ran audit on SBN repo to identify overlooked bugs
        - Implemented bug fixes on SBN pipeline.
        - Identify areas of improvement mainly for place recognition
    - Out of Office
        - PFL/Vacation: Jul 13, 2026 - Jul 17, 2026
- Brett Hobson
- Irene Hu
    - 901805 - Coastal Biogeochemical Sensing Program
        - Nanofet
            1. Finished assembling tester circuit for turning off bias battery. Initial tests with Yokogawa showed some unexpected extra transient current draw, traced to sagging voltage on latch's data input pin as GPIO power is cut or left floating. Added pulldowns and has some implications for code.
            2. Tester circuit is currently undergoing long term power consumption tests but so far seems promising
        - Alkalinity

1. Alkalinity chip from Lionix with measured lower anode resistance built into TApHI 002 sensor by Luke. Made connectors and set up for alkalinity titration. Spent a day troubleshooting non-working pH and anode, it started working at some point during tests and best hypothesis is a bubble
2. Initial titrations of TApHI 002 show some working behavior nut titrations don't seem to fully hit two inflection points or are inconsistent. Currently experimenting.
3. Updated code to be able to toggle between Vrse and Vrsi

- 901904 - Deep-Sea Coral-Sponge Community Observatory
  - Cataloged and sorted metadata for images and data from last cruise. Assembled multipage tiffs of the images we took for easier viewing and handover.

- Scott Jensen
  - Out of Office
    - June 26-July 7 (vacation)
    - July 15 - 21 (vacation)
- Brent Jones
  - 901112 - Monterey Bay Time Series
    - SIPPER failed again. Traced to faulty Maxon EPOS4. Figuring out what to do
  - 901502 - Ocean Soundscape
    - Wire Walker deployed
  - 901805 - Coastal Biogeochemical Sensing Program
    - Update counter electrode design to add chamfer
    - Change alkalinity flowcell to accommodate Lionix
- Chad Kecy
  - Out of Office
    - Out of office on Fridays
- Brian Kieft
  - Out of Office
    - 07/01 (GMT -7)
    - 07/17-07/22 (GMT -4)
    - 07/26-08/07 (GMT +9)
    - 08/26-08/28 (GMT -4)

- Denis Klimov
  - 702106 - CeNCOOS
    - As Power Buoy deployment is getting closer, we will need to have IFCB ready. I am looking at assembling an improved version of the mobile test stand and run IFCB in building G using such a stand so it can be moved around as needed. In the meantime, it is in the optics section of a lab B232 requiring some repairs and tuning.
  - 901809 - Deep Sea Bioinspiration
    - Looking at the Interface Can issues which leaks occasionally for no apparent reason.
  - 902305 - Event Detection Using the Sedimentation Event Sensor
    - Assessing previous design of a fluorometer and camera system. We have a number of options going forward, especially regarding a second video channel. But the consensus so far is that we should keep the existing 2-channel fluorometer for fluorescence signal reference and method continuity. Besides, its housing is likely too small for camera integration.
    - The other important point, we are looking at eliminating a legacy solution of using liquid interface between cans with optics, and carousel disks which would allow better illumination and simplified assembly and maintenance.

        - Preparing materials for proposal
    - 902401 - Geo-Sense
        - We had a successful 3rd deployment of the DAS system with the Elevator and 115 m. of the optical fiber unspooled with the ROV. Deployed/ recovered with Rachel Carson and stayed out for a week. An updated output of the optical fiber from the elevator was tested and we acquired good data.
        - Sensitivity was proven to be sufficient to detect minor earthquakes. This test is informative for optimizing equipment for further deployments.
    - Overhead
        - We are at the finish line with the Laser Cutter project. At the building G installation, we had 85 CFM of the exhaust with this machine which is below manufacturer-specified 300 CFM, so a Stop Order was issued by the Safety Office concerning fumes toxicity and possible laser beam hazard issues.
        - With the new installation in B137, the new lab by the former Model Shop, we measured 210 CFM with improved ducting and building exhaust fan; which is still below manufacturer specifications. However, uncertainties in the requirements exist in the manual which Tech Support failed to clarify: is 300 CFM a specification of the fan itself, or is air flow measured after the fan and ducts are connected to the machine, and in such a case, where and how this is to be measured?
        - Instead of optimistic interpretation on the uncertainty in air flow requirement, I am proposing de-rating laser power to 70% from installed 65W CO2 laser utilizing conservative interpretation of such an uncertainty, while still adhering to the Safety Factor specified by the manufacturer.
        - Based on the physics of cutting materials with lasers, reducing beam power to 70% would proportionally reduce exhaust air from 300 CFM to about 210 CFM which we achieved. This power reduction would make it effectively a 45W CO2 laser.
        - Since the machine is simple and does not have any system of detection if air flow is sufficient, responsibility for watching fumes/ smoke removal is on the operator. So, laser power above 45W and up to installed 65W might still be possible which can be decided by the operator, as soon as implications are understood.
- Eric Martin
- Thom Maughan
    - 902004 - Planktivore
        - Demonstrated Planktivore twice at MidSEC conference
        - Deployed Planktivore in research salmon pen near Bergen Norway
        - Met with NTNU AURlab team members looking into opportunities for collaboration.
    - Out of Office
        - Fifteen days June 12 - 29 for Norway Planktivore collaboration with Tidal and imaging workshop in Sweden.
        - Two week vacation July 6 to July 17, Colorado
- Mike McCann
    - Out of Office
        - 19 June - 10 July: Vacation
        - 18-24 July: SIGGRAPH in LA
        - 21-24 September: Oceans Conference
- Enoch Nicholson
- Tom O'Reilly
- Mike Risi
    - Out of Office
        - Offsite on Tuesday and Friday

        - January 2, 2026 - vacation
        - January 19, 2026 - January 30, 2026 - vacation
        - March 4-5, 2026 - vacation
        - March 16, 2026 - vacation
        - March 30, 2026 - vacation
        - May 18, 2026 - vacation
        - June 22, 2026 - vacation
        - June 29, 2026 - July 1, 2026 - vacation
- Paul Roberts
    - Out of Office
        - June 13 - June 20, 2026 MidSEC, Sweeden
- Brent Roman
    - 708184 - ESP Monitoring PNW
        - Exhaust port of ESPeddie, deployed off La Push, WA, sticking closed
        - Uncovered bug in Ruby exception masking
            1. Pushed fix and now the Exhaust unstick exception recovery working
        - But, we will still run out of battery a few weeks before planned recovery
    - 901205 - ESP SURF Center
        - Helping Nadia bring up ESP3s retrofitted for Function cartridges
        - Updating every ESP2G in the field (ongoing, never ending ;-)
    - 902204 - Scalable Robotics
        - Hacked the camera driver to allow it to pass through JPEG encoded frames from camera
        - Increased max frame rate from 6fps to 18fps. Yippee!
        - Ripped out Stereo Matcher
            1. Need to work with Sebastian on optimizing it.
    - 902304 - Piscivore Cam
        - Finally figured out how to enable fisheye lens dewarping on RockChip camera
    - DQ2435 - GLERL AK
        - Shipped dummy ESP for comms integration testing onto their ASV
- Carlos Rueda
    - 902101 - LRAUV Technology Development
        - TethysDash: Addressing issues reported by Monique, one now fixed, the other being investigated.
    - Out of Office
        - June 29-30 vacation
        - July 13-14: medical leave
- Karen Salamy
    - 300057 - Mooring Maintenance
        - Weekly maintenance and monitoring of newly deployed M1 Mooring 202606.
        - Received a note from Jason Adelaars regarding an upcoming OA1 deployment: *(Giving you a heads up that Jules and I are prepping an OA1 turnaround in about a month. We'll be swapping the microcat for an RBR CTD - will likely have similar column parsing as the current OA2 deployment. No pH probe on this deployment. Otherwise, the CO2 system, VR2C, dissolved oxygen, MET, and chlorophyll fluorescence will be there.)* <u>No set deployment date yet though</u> *(We don't have an exact date yet. We still have a couple of blockers. I'm hopeful either the week of July 27th or August 3rd. But probably won't know for another few weeks.)*
    - 901101 - Seafloor Mapping
        - Received a request from Jenny P. to make quick updates on SMDB.

        - Out of project time but plan to implement the quick fixes next week.
    - 902101 - LRAUV Technology Development
        - Features
            1. Added GPS surfacing dots, sticky track tooltip, and pre-waypoint marker on deployment map — Issue #744, PR #745
            2. Added planktivore payload indicator and galene LEDs to the vehicle widget — PR #734
        - Bug Fixes
            1. Brought overview VehicleCell to parity with the full vehicle page widget — Issue #732, PR #743
            2. Fixed Back button in mission wizard now correctly re-shows Parameters Summary — Issue #723, PR #739
            3. Fixed logset tooltip clipping in narrow science sidebar — Issue #718, PR #738
            4. Fixed map projected route backtracking and center button stale zoom — PR #737
            5. Fixed clipboard state preservation between Ctrl+C/V in doc editor — Issue #740, PR #742
            6. Fixed Amend Command unit parsing for LRAUV type annotations and trailing semicolons — PR #724
            7. Restored modal visibility and document duplication — Issues #728, #729
            8. Fixed pre-existing failing tests and added coverage for v5.2.9 features — Issues #748, #750
        - Documentation
            1. Added CHANGELOG.md tracking all v5.2.x staging releases
    - 902111 - Carbon Flux Ecology
        - Merged PR #70 — Dash-Health UI clarity, SedFlux dual-instrument cards, logs 404 fix, console cleanup (merged Jun 29)
        - Merged PR #72 — Show 0.0% humidity instead of N/A when reading is zero (merged Jun 30)
        - Deployment Coordination with Danelle - A bandwidth spike on production (ZMQ stream containers consuming ~10 Mb/s) triggered a coordinated response between Danelle and I that led to several infrastructure improvements:
            1. Danelle granted group-write access to /opt/deployments/sinker on both servers
            2. Azure AD / NextAuth secrets moved from compose.yml into .env; saved to BitWarden SE-IE collection
            3. Ansible agreed to only update version lines in .env, never overwrite the file
            4. jetson-monitor and sinker-status-logger added to compose.yml (were previously manual containers)
            5. Logs tab enabled; sinker-status-logs volume mounted on dashboard
            6. All 15 services now compose-managed on production
            7. Unified compose.yml from git (PR #6) agreed as target state — pending Danelle's merge
            8. sinker-backend updated to v0.13.0 on both servers (verified against checklist before deploying)
    - Overhead
        - Meetings, Talks, etc.
    - Out of Office
        - July 21-24, 2026 - Vacation
        - March 22-24, 2027 - Vacation
        - On-campus 3 days/week (**T, W, TH**). New OFFICE - G106.

- Brian Schlining
    - 500055 - VARS, M3/RS, DSG
        - Reworked gehenna.shore.mbari.org's SSL certificate to align with IS's new recommendations.
    - 901809 - Deep Sea Bioinspiration
        - Follow-up with NCEI regarding FathomNet's archive data submission.
    - 902403 - Expedition DB Modern
        - Investigating data pipelines for new EXPD. Added data transforms for derived oceanographic data (they were previously in stored procedures).
        - Added endpoints to emulate the existing data access servlets on coredata.
    - Overhead
        - Finished expense reports for MidSEC.
        - Started dialog with Kerry Howell about setting up VARS in her lab. (It was recommended to her by a lab in Galway using VARS)
        - Started dialog with Manu Prakash about setting up VARS in his lab. Tentatively scheduled for a visit in August to help set them up.
        - Proposals.
    - Out of Office
        - Jun 11 - Jun 19: Midwater Science and Engineering Community Conference, Sweden.
        - Jun 22 - Jun 26: Vacation
        - Jul 27 - Aug 6: Vacation
- Quinn Shemet
    - Out of Office
        - June 25: Remote
        - Jun 26 - Jul 5: Vacation
- Alana Sherman
- George Stern
    - 902106 - Niobicon-Based AUV Docking Development
        - Began testing the solar dock, worked with James to fix
        - Completed schematic for the active diode bridge
    - 902204 - Scalable Robotics
        - Finished making up hardware for a mola thruster test
    - 902304 - Piscivore Cam
        - Finally completed lens testing of all the cheap lenses from aliexpress, specs were at least partially incorrect on most, only one was faster with similar fov to what we have now but minimum focus distance was much further out which meant not enough pixels on target to resolve small features with an infinity focus.
        - Reviewed schematic with Denis, updated schematic, linked and created netlist and started working with Jose/James on a very tight layout.
        - Continued ordering long lead parts
- Justin Tucker
    - Overhead
        - Doc Ricketts lifting analysis
- Johann Voigtlander
    - 902204 - Scalable Robotics
        - Got the BlueBoat set up so Kent could work on the Cerulean sonar
    - 902208 - Mini ROV Operations
        - Submitted the MiniROV 2027 proposal and budget
        - Installed Paul's stereo camera on the vehicle for testing
            1. Designed and 3D printed a mount for it

        2. Confirmed cable wiring and voltage
    - Sent clarification emails to pietro in Italy
        1. Had to edit the master deployment document
  - 902312 - Seafloor Processes
    - Gathering bubble camera requirements from Aaron
- Emme Wiederhold