

Thom Maughan Sorted By Project

300070 - DMO Support - Ventana

- Installed ventana ground fault xoyo app on DJs updated laptop. Quick but no thorough test. (Week 42)

300078 - DMO Support - AUV

- Reviewed Hyperion power supply design with Erik. Addressed the feedback and the layout and BOM for parts ordering is nearly finished. (Week 1)
- Hyperion mvc baseboard detailed design review and pcb layout, about 80% complete. (Week 37)
- Hyperion detailed design review, update and pcb layout in kicad (Week 38)
- Wrapping up Hyperion MVC2 baseboard, aka, som carrier detailed review and layout. (Week 39)
- finished Hyperion MVC2 baseboard, aka, som carrier review and layout. Sent out for pcb fab and assembly (Week 40)
- Working on Power Supply board (Week 40)
- PCB fab for the Hyperion mvc2 baseboard, aka, som carrier is in progress. There were a couple parts that went out of stock between ordering and assembly that caused a small delay, but expect boards to be received next week. Parts have been ordered for those that were not in stock at rapid proto assembly house. (Week 42)
- Working on Hyperion mvc2 power supply. Finished the design of the 24v converter and am working on layout of that subsection. 12v, 5v and 3.3v are based on the same converter ic and that design is partially complete, needing simulation. (Week 42)
- Hyperion MVC2 mobo, aka som carrier is back from fab. EE-Tech stuffing the remaining parts. Assembly was not as complete as planned due to partial stock at assembly house. (Week 44)
- Jose prefers to stuff the entire board rather than partial, so may order blank pcbs for the build of 3. (Week 44)
- Board bringup hopefully starts this week. (Week 44)
- Working on Hyperion power supply. Using GaNfets for 24v supply. Simulation shows over 98% efficiency at 125W - hoping that is real. (Week 44)
- Hyperion MVC2 (aka som carrier) testing (Week 45)
- Hyperion MVC2 power supply board design, started layout. Erik is optimizing pin assignments on the bus connector and those changes will be folded in. (Week 45)
- Working with Erik on Hyperion MVC2 (som carrier) board bringup. Phytex / NXP docs are nice. Linux is up and running and were debugging uSD and ethernet switch. Console, USB OTG, bootcfg are working. (Week 46)
- Hyperion power supply design and layout (Week 49)

- Review and discussion on next steps for MVC2 / SOM carrier, LCB, backplane (Week 49)
- Hyperion Meeting (Week 49)
- Hyperion power supply design / layout (Week 50)
- Review power entry board, send for fab (Week 50)

300083 - DMO Support - LRAUV

- BPC2 battery packs assembled and tested and installed into Galene after Degaussing by Denis. (Week 1)
- Charged using tether and LRAUV lab power supplies (Week 1)
- Demo'd the firmware interface to Varsha and Brian (Week 1)
- Working with Varsha on battery backplane BPC2 RevB board bringup. Found and fixed a few things, enough to spin a RevC. (Week 2)
- Sent PO to Indtec and then put a hold on the assembly. We'll be making a RevC to address the issues. (Week 2)
- BPC2 RevC was handed off by Duane and we were adjusting some connector locations thanks to feedback by Evan M and a layout problem was found in the power discharge path. After discussing and looking at 10 layer board as an option, the decision was to relayout the pcb. (Week 4)
- Setup Cole with the portable Batman development environment. (Week 4)
- Wheeled portable Batman dev cart to Cole, meeting to discuss next steps (Week 5)
- Brief meetings to catch up. Batman will be timeslicing with MSC3 effort in March. (Week 9)
- Hardware is in fab, Erik handled issues with NexPCB and MBARI pcb spec. (Week 9)
- Meeting for status and plans (Week 11)
- Protocol doc update (Week 11)
- Attended status meeting. (Week 12)
- Backplane pcbs have been hand assembled and are ready for test. Varsha and Cole doing a great job keeping forward momentum. (Week 14)
- Weekly meeting. (Week 15)
- Met with Cole and we'll coordinate and share board bringup. ASO group is quite busy and my time is heavily burdened by another project. (Week 15)
- Cole is working board bringup on the new backplane. Varsha is on the ready line to send parts and PO to Indtec. Everyone is busy, so soonest will be next week. (Week 16)
- Working with Cole and Varsha on LRAUV battery. (Week 22)
- BPC2 out for assembly. (Week 22)
- Moving forward with software dev on the handbuilt backplanes (Week 22)
- Setting up for Batman development (Week 28)
- BatMan serial protocol spec updated, reviewed, feedback addresses (Week 29)
- Building two additional battery packs (Week 29)
- Firmware updates to align with protocol spec (Week 29)
- Built two battery packs for vehicle integration test and deployment (Week 30)
- Updated serial protocol spec (again) (Week 30)

- BatMan firmware updates to enhancements to the protocol (Week 30)
- Finish build and test of two battery LRAUV battery packs with BPC2 backplane. (Week 31)
- Merged Coles 'charge management app' code into BatMan. Delivered a version of BatMan firmware to the LRAUV lab for Quinn to write LRAUV battery component. (Week 31)
- Troubleshooting noise char on long test cable with LRAUV setup. Experimenting with different resistance on RS232 multidrop. (Week 31)
- Updated Batman firmware to address protocol feedback (Week 32)
- Troubleshooting serial garbage chars, fixed with a 10k terminator (Week 32)
- Enhanced the battery charge handler in BatMan, testing and bug fixing. (Week 33)
- Added fields and new serial commands to support charging. (Week 33)
- Testing on LRAUV (Week 33)
- Updated protocol spec. (Week 33)
- Batman firmware new features (Week 34)
- Working on integration and test with LRAUV. Troubleshooting noise problem on rs232 multidrop. (Week 34)
- Full power charging and discharging. Cables and supplies that can handle 20amps. (Week 34)
- Batman BPC2 battery packs comms connected to LRAUV. Debugged noise issue on rs232 multidrop. Quinn is moving forward with battery driver. (Week 36)
- Testing fault scenarios, writing handlers. (Week 36)
- Testing constant current charging. Found an issue with shore power adc, working it. (Week 36)
- Delivered two BPC2 battery packs for software testing on the LRAUV. Chris B made 3 cables that addressed noise issues. Reconfiguring for use without multi-drop rs232 for the first phase. (Week 37)
- Testing constant current charging and limit / fault testing. Found an issue with shore power adc values in certain test configurations, debugging it. (Week 37)
- (Week 37)
- Batman testing. Shore power ADC not reading correctly with low voltage constant current charging and batteries in Trickle to Softstart transition. (Week 38)
- Supporting LRAUV software integration (Week 38)
- Status meeting, feedback on protocol (Week 38)
- Misc cable harnesses, drawings (Week 38)
- Building another dev pack, chasing adc issue in trickle to soft start transition during charging (Week 39)
- Built up a third BPC2 battery pack for debugging ADC issue in trickle to soft start transition. (Week 40)
- Varsha and Chris are getting ready to install Batman BPC2 battery packs in Galene. Quinn has finished the driver interface so first integration test coming soon. (Week 40)
- Debugging ADC issue. Rewriting ADC driver. Have cycled the discharge / charge cycle twice and the state machine only has a flaw with ADC during trickle to softstart. (Week 42)

- Batman testing, tracking down adc issue (Week 44)
- BatMan adc driver update, working on testing the charging state machine transitions. (Week 45)
- BatMan meeting. Galene has been identified as the test vehicle. C (Week 45)
- Formalizing the test plan and providing explanation on functionality. Found and fixed a couple bugs. Charging at upper voltage limit is causing thermal issues, investigating. (Week 46)
- Looking into heat spreader plate. (Week 46)
- Batman firmware release and test (Week 49)
- First two packs are in assembly and then will be de-guassed and installed in Galene (Week 49)
- Working on procedure for identifying weak battery sticks from the old packs (Week 49)
- Battery packs are assembled and waiting for degaussing by Denis (Week 50)
- Ran simulation on switching converter, lowered the frequency to improve thermal, reviewed with Erik and then modified the packs (Week 50)
- Reviewed Evan's heat sink design (Week 50)

701160 Year 4 Sensors

901009 - CANON

- Configured, reviewed with science users, and ordered a new \$70K bioinformatics high performance computer, DeepEdna3 (Week 1)
- Received feedback on DeepEdna1 and 2 regarding the need for larger local storage. Ordered 2x 60TB SSD drives for the upgrade. (Week 1)
- Very much appreciate working with IS on the model where security patches and backups are provided by IS with software installation and setup are managed by science users with sudo privileges. (Week 1)
- Minor support on deep edna server (Week 40)
- Deep Edna support (Week 49)
- Spec'ing out another high perf compute server as a possible spend path for science department year end funds (Week 49)
- Meeting with IS regarding backup of larger 60TB drive possibility for deepedna1 and 2 (Week 49)
- Configured a hi perf server from Puget, provided Francisco the \$70K quote for a potential deepedna3. Also provided Sebastian a \$20K quote for upgrading fast storage on DeepEdna1 and 2 (Week 50)

901217 - Chemical Sensors

- Finished bug fixes and manual testing for MoSoS v5.1.8. Jess ran the test vectors. (Week 1)
- Handed off MoSoS v5.1.8 to Dana Swift at UW with the month long regression test cycle starting on Jan 2nd. (Week 1)

- The four 'engineering test' floats are profiling daily and successfully returning data with the exception of one which has experienced a known hardware failure of the Heraeus Fiberlight UV lamp power supply. (Week 1)
- Working with Ben and Josh on building six 'dev / test' boxes with MSC3 RevB and Tiva 123g (Week 2)
- Working with Jacob Schloss to merge 1290 changes. Dev box sent to Jacob to enable Nitrate and pH driver testing. (Week 2)
- Working to finish serial protocol (Week 2)
- Working with (Week 2)
- Dev/Test boxes are mostly built and tested with MSC3 RevB baseboards and v5.0.3 MoSoS. (Week 4)
- Jess has the TestVectorizer python script running tests and Irene has setup the Yokagawa for energy measurement. Jess has run repeated tests on the MSC1 and is starting to run MSC3. (Week 4)
- Irene received MSC3 RevD baseboards on the 15th. (Week 4)
- At UW 25 Jan to 30 Jan. Met with Dana Swift and Aadu Prakash, MSC3 dev box, test plans, schedules, etc. (Week 5)
- Working on MSC3 software. Release v5.0.4 on Jan 23, v5.0.6 with MSC1 compatibility on 28 Jan (Week 5)
- Working with Jacob on Tiva 1290 support. Testing. (Week 5)
- Hit milestone prior to vacation, moved to Tiva 1290 from 123g. Demonstrated compatibility and less bugs running Jess's test vectors. (Week 9)
- Finishing implementation of serial commands. (Week 9)
- UW regression suite update for full command coverage. (Week 9)
- Introduced a new command for starting a profile, worked it with UW. (Week 9)
- Feedback for MSC3 RevE baseboard. Help with Tiva 1290 RevB production. First production release is planned to use MSC3 RevD baseboard and Tiva 1290 RevB. Aiming for end of March release to UW. (Week 9)
- Working on git procedure for the team. Clone, branch, merge. Starting Techfest on Thursdays to begin ramping people on Code Composer Studio and MoSoS code base. (Week 9)
- Irene asking if older v4 phfetsos is open source. Yui confirmed yes. We'll start Alkalinity work with phfetsos v4 on mphox at Scripps. (Week 9)
- Working to end of March for software and hardware handoff to UW. (Week 11)
- Test infrastructure investment is paying off nicely. (Week 11)
- 'Find fix' sessions have been working great. K0 pH Cal test case is passing. N03 Cal test case is passing, working on Profile test case. (Week 11)
- Flagged Numerical Recipes in C license to Ken and Yui. Excluding NR content in next release. (Week 11)
- Working remote from Colorado in a quiet room with a nice view. (Week 12)
- Working towards end of March release to UW. Jess, Ben, Josh are running tests and updating test boxes with daily releases. (Week 12)

- Find-fix bug sessions have been very productive. Testing 170 commands with and emphasis on automating test of all the commands used by the APF11 float controller. (Week 12)
- pH K0 Calibration and NO3 Calibration are running with no errors on MSC3. (Week 12)
- Float profile test errors are mostly due to 'work in progress' on some of the less critical commands. Changes in fileio from PicoDOS to FatFS, and issues with parsing are the source of most bugs. (Week 12)
- UW test suite. Met with Aadu and am working remote with Jess on getting UW tests running on MSC1 with serial protocol capture. Running MSC3 results in changes to the UW test suite. (Week 12)
- Serial commands are implemented (Week 14)
- NO3 calculation and File IO are work in progress. (Week 14)
- Aadu Prakash of UW, age 32, passed away on 28 Mar 2025. Our kind, positive and capable firmware engineer who has been my primary interface to UW will be greatly missed. (Week 14)
- Revising test plan and evaluating options for filling gaps on UW regression suite. (Week 14)
- Working bug list and managing contractor... (Week 14)
- Schedule pressure is high (Week 14)
- Nitrate calc has been quite an ordeal and working with Jacob and Josh with assist from Irene we're very close. Matrices and numerical recipes calcs have all be validated and several issues found and fixed. (Week 15)
- Working with Jess on test vector output - finding and fixing (Week 15)
- Identified a problem running at 8.0v, characterized it and Irene is working it. (Week 15)
- Working on schedule estimate and aiming to provide that to the two PI's on April 10. (Week 15)
- Rough meeting on schedule last week. Latest has no pad and the who group is in an all out push. I'd write more, but I need to get back to coding / testing. (Week 16)
- Was able to get 40 additional hours of contractor time, we're working the regression suite and he will be modifying what works for MSC1 to accommodate the changes MSC3 brings to the table. (Week 16)
- Handed off to UW on May 16 for integration with APF11 controller. (Week 22)
- Working thru integration and bug fixes, as of May 28th, handed of MoSoS v5.1.5 as the candidate to begin the float simulation phase. (Week 22)
- Released MoSoS v5.1.6 to begin UW float sim (Week 23)
- Working contract for reworking code to add back boards support for older Tiva 123g processors. (Week 23)
- Milestone achieved. MSC3 revD + Tiva 1290 revB running MoSoS v5.1.7 firmware passed linux regression tests and APF11 controller testing and is now moving forward to several weeks of FloatSim integration testing. On track to at sea testing mid August in Monterey Bay. (Week 24)
- ChemSensors production is using MSC3 as the Persistor CF2 based MSC1 is officially at an end having recorded 4 million pH and 3 million Nitrate samples. (Week 24)

- Simulation at UW is half complete, no issues reported. Float deployment in Monterey Bay first week in August. (Week 26)
- Emails and phone call, minor support for MSC3. (Week 28)
- Float deployment is first week in August (Week 28)
- Minor support for MSC3 questions from UW and the lab. (Week 29)
- 2nd Argo float with MSC3 was deployed and is returning good data. (Week 36)
- Argo float data is looking good on the two test floats (Week 38)
- Float data looking solid (Week 39)
- Minor support / participation with Alkalinity and mini ISUS (Week 39)
- Working with Jim, contractor on MoSoS v5.2 platform support (Week 39)
- Two floats are returning good data. A third float deployed near Hawaii has had a UV lamp intermittent failure, something that has happened in the past about 1 out of every 100. Not a software problem but wishing it could be root caused. (Week 40)
- Dana Swift at UW has requested a point release for the MSC3. Working with the chem sensors team on the bug listed slated for the point release as well as setting up for testing. (Week 49)
- Preparing the MoSoS v5.1.8 release for handoff to UW at end of December. Jess has been manually testing pre-releases. Planning to start running regression tests end of this week. (Week 50)
- Found and fixed the teraterm issue affecting some laptops and usbserial cables. (Week 50)

901513 - Targeted Sampling by AUVs

901805 - Coastal Biogeochemical Sensing Program

- Jim Davis has finished his contract and has preliminary support for MoSoS v5.2 command line on nanoFET, MFET and MpHOX. I've got several weeks of implementation and test before releasing v5.2 for use in Yui's projects. (Week 1)
- Support Alkalinity sensor has been mostly handled by Jim. (Week 1)
- Modified phfetsos v4.2.4 to ensure cr-lf transmit prior to sleep for LRAUV integration. Sounds like other problems encountered so a switch to polled mode is likely. (Week 26)
- Working with contractor Jim Davis to update MoSoS v5.2.x for support of Tiva 123g based hardware platforms, MpHOX, MFET and nanoFET. (Week 29)
- Working with Jim Davis on MoSoS v5.x support for Carbon lab platforms (Week 32)
- Working with Jim Davis (Week 34)
- Working with Jim Davis on MoSoS v5.2 (Week 36)
- Supporting Irene's work on alkalinity using MoSoS v5.2 on MpHOX. Finding issues with the rtc / hib backup battery. (Week 36)
- Advising on fast sampling for upcoming CTD cast. Sub-second nitrate sensing. Irene is doing the coding as I'm out of hours. (Week 38)
- Minor support for MoSoS menu issue on mini-ISUS. Looks like mini-ISUS was a success on the Santa Barbara cruise, well done Irene and team. (Week 44)
- Working with Jim Davis on v5.2 MoSoS for MFET, NanoFET, MpHOX (Week 49)

- Reviewed Brent Jones new NanoFET hardware design (Week 49)
- Support for Irene's Alkalinity effort on MpHOX rB (Week 49)

901904 - Deep-Sea Coral-Sponge Community Observatory

902004 - Planktivore

- Finished test and debug of the camera controller hardware (Week 1)
- Assembly into housing and prep for Denis to do his magic on final assembly for second build of Planktivore V2 for the Deep LRAUV. (Week 1)
- Setup recurring meeting. (Week 4)
- Met with some of the team 1:1 (Week 4)
- Sent request to ASO group for I2MAP following mission. Monique had already coordinated the following weeks MBTS Plankton Proxies (Week 4)
- Planning to meet with Kevin / Carlos to see if we can get minor bugs fixed on ODSS Planning (Week 4)
- Weekly meeting. April deployment schedule is very busy. (Week 9)
- Weekly meeting (Week 11)
- Ahi deployment for I2MAP following mission was affected by Paragon repair. (Week 12)
- Paul and Brent have been carrying the load on Planktivore. (Week 14)
- Weekly Meeting (Week 15)
- MBTS was this week, Synchro next week. Brent and Paul are supporting the deployments. (Week 15)
- Ahi+Planktivore V2 is deployed running the Synchro mission which takes Ahi well past M2. Paul and Brent supporting Jason and team. (Week 16)
- Weekly meetings (Week 22)
- Ongoing deployments (Week 22)
- Weekly meeting (Week 23)
- Begin of second planktivore V2 assembly for deep LRAUV (Week 23)
- Planktivore v1 is headed for another benthic deployment week after next (Week 23)
- Cole wrote an LRAUV mission for following I2MAP. Makes the deployment push button. (Week 23)
- Ahi+Planktivore V2 was deployed for Plankton Proxies along with MBTS mission (Week 24)
- Benthic Planktivore V1 is charged and being readied for deployment next week by the Barry Lab for deep-sea coral and sponge community observatory. (Week 24)
- Proposal (Week 26)
- 2026 Planktivore Proposal (Week 28)
- DMO is managing the Ahi deployment for I2MAP, recovery is on Thursday (Week 28)
- Open house prep (Week 28)
- Chris BB. finished the assembly of boards and cables (Week 29)
- Camera controller and strobe board bringup (Week 29)
- Assemble and test of cables, camera controller and strobe boards for spares and development setups. (Week 31)

- Working with Paul and Denis on 2nd planktivore V2 build. (Week 31)
- Lab cleanup (Week 31)
- Slide prep for ML workshop on Aug 4. (Week 31)
- Planktivore v2 build is in progress. Orin's are all programmed, Denis is fine tuning the optics chassis and alignment, camera controller electronics are ready to go. (Week 32)
- Working with Aaron on housings. (Week 32)
- Met with Chad, discussed feedback on camera controller schematics. Discussed next task as power control for long term deployments. (Week 33)
- Working with Brent on camera controller, strobe board and cable testing. (Week 33)
- In progress on second build. Denis has made good progress on assembly and improvements to jigs for optical alignment. (Week 34)
- Board checkout delayed by focus on LRAUV. (Week 34)
- Camera controller and strobe boards tested. Denis is working the assembly in his lab. (Week 36)
- Parts ordering for shadowgraph, bench development setups and spares. (Week 36)
- Proposal feedback (Week 36)
- Working on Planktivore V2 B build, impacted by other projects. (Week 38)
- Working on 2nd build of Planktivore V2 (Week 39)
- Working with Denis on assembly of Planktivore V2 B for deep LRAUV (Week 40)
- In progress on the build of Planktivore V2B. Ethernet switch is mounted and wired. Denis is in progress on the strobes. (Week 42)
- Planktivore V2b build (Week 44)
- Planning meeting, budget, project mgmt (Week 44)
- Working on spend forward DeepRip replacement. Prices have gone up since the budget request. (Week 44)
- Review of mechanical design, feedback and review again. Aaron is on the home stretch for submitting the imaging tubes and ends to the shop. (Week 45)
- Looking at options for Planktivore v3 mods to the camera controller board. (Week 45)
- Working on DeepRip2 purchasing. Thanks to Kent for the budget bump to cover increased hardware costs. (Week 46)
- Working imaging tube design updates with Aaron, looking at various options for spares. (Week 46)
- Housings are on track for fab by end of year (Week 49)
- Planktivore V2 assembly has been delayed, plan is to resume mid-December (Week 49)
- Brent is working to lower the power consumption on the Orin. We also have found that 3 to 4w could be saved by switching to a different machine vision camera. (Week 50)

Out of Office

- Vacation Jan 5 - 9
- Photonics West, 1 day, likely Jan 20
- Vacation 10 Feb to 18 Feb, Colorado and Texas
- Vacation / Working remote 15 Mar to 26 Mar
- Working remote 15 Mar to 26 Mar
- TBD, Trip to UW after MSC3 passes our test plan

- TBD, Trip to UW after MSC3 passes our test plan, new forecast is mid-May.
- Vacation: June 16 to July 8
- TBD
- Out sick a couple days
- Sick leave 16,17th
- Vacation 15 Oct to 24 Oct.
- Vacation 21 Nov to .28 Nov
- Vacation TBD around Christmas

Overhead

- Proposals (Week 28)
- Club Plankton at Open House (Week 29)
- Machine Learning Workshop (Week 32)
- Deployment of first Argo Float with MSC3 and MoSoS v5.1.7 on Tuesday 12 Aug 2025!!!
Data looks solid. (Week 33)