

Thom Maughan

Week 52

- 901009 - CANON
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
- Overhead
- Out of Office
 - Dec 22 - 28 Vacation Colorado
 - Jan 4 - 8 CES

Week 51

- 901009 - CANON
 - The two GPU based rack mount servers for bio-informatics arrived. Named deepedna1 and deepedna2. Met with Joe, Peter and Doug to discuss IS involvement and long term plans. Great meeting.
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
 - Support for glider integration and testing
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
 - Year end budget.
 - Review of setup parts in machine shop with Denis and Paul
 - Work on camera controller hardware design
- Overhead
- Out of Office
 - Dec 22 - 28 Vacation Colorado
 - Jan 4 - 8 CES

Week 50

- 901009 - CANON
 - Working with IS on getting rackspace/ups/power for the two bioinformatics servers. These are Ubuntu 22.04 machines with NVidia GPUs. Planning to meet with Doug/Peter/Joe on HiPP IS labor division. Physical space, power and security patches for sure. Would like NFS mounts if possible.
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
 - Ongoing testing of v4.1.6. Assisting setup for lab testing.
 - Experiment duty cycle feature.
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
 - Working with James Mc on test of buck-boost converter efficiency and providing design overview doc.
 - Parts and docs kit for Indtec. Sent quote request.
 - Working on Camera Controller design
 - Year end project admin and budget

- Overhead
- Out of Office
 - Dec 22 - 28 Vacation Colorado
 - Jan 4 - 8 CES

Week 49

- 901009 - CANON
 - The two bio-informatics HiPP machines are built and in test at the vendor. Shipment should be in a week or so
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
 - Release pHFET-SOS v4.1.6 for lab testing. Support for new sensors and first release for nanoFET
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
 - Working on Cam control board. Getting quotes for pcb assembly.
 - Working with Denis on Fluum
- Overhead
- Out of Office
 - Dec 22 - 28 Colorado

Week 48

- 901009 - CANON
- 901713 - Nearshore FOCE
 - Testing nsFOCE use case in latest pHFET-SOS release candidate
- 901805 - Coastal Biogeochemical Sensing Program
 - Driver testing for pico-ph, nanofet, ocr504, ctd sbe37 and 5860 with updated driver framework.
 - Verifying bug fixes, release prep for pHFET-SOS.
 - Industrial microSD stress testing - good so far.
 - BME280 support for nanoFET.
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
 - Reviewing Fluum updates from Denis
 - Reviewing Jon's housing design
 - Budget and project organizing
 - Parts ordering and kitting for board build at Indtec.
- Overhead
- Out of Office
 - Dec 22 - 28 Colorado

Week 47

- 901009 - CANON
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
 - Working on merge of Irene's instrument drivers and eddy covariance code. Updating drivers to new driver model. Wiring up instruments and testing.
 - Finished nanoFET as a pH instrument driver on MFET / MPHOX.
 - Scoping m2m protocol
 - Designing experiment duty cycle feature.
- 902000 - Multi-Spectral StealthCam
 - 160 hours allocated have been moved to other projects.

- 902004 - Planktivore
 - Working on components of Camera control. Boost v1.1 board build and test. Puzzling thru optimizing impulse response / loop compensation across the input voltage range (4.5v to 50v) in LTpowerCAD. Board works great and is ready for Indtec assembly.
 - Working on update for LED strobe design - aiming for 3x light output to support shorter pulses for higher speed LRAUV.
- Overhead
- Out of Office
 - Dec 22 - 28 Colorado

Week 46

- 901009 - CANON
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
- Overhead
- Out of Office
 - Nov. 14 - 16 Colorado
 - Dec 22 - 28 Colorado

Week 45

- 901009 - CANON
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
- Overhead
- Out of Office
 - Nov. 14 - 16 Colorado
 - Dec 22 - 28 Colorado

Week 44

- 901009 - CANON
 - Met with Kobun to review specs for eDNA workflow server. Gathered quotes and am working with the vendor to get the most bang for the buck.
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
 - Working on nanoFET instrument driver for MFET. Hit a snag on electrical mod for output voltage from MFET to drive nanoFET. Ordered a small boost converter.
 - In progress on experiment duty cycle statemachine.
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
 - Jon held design review for Planktivore Rev 2 housing. Gave feedback and approval to move forward with fab.
 - Weights for internal components. Also sent a prelim camera controller solid model to Jon.
 - In progress on camera controller update for Rev 2 housing. Buck-boost converter daughter card, boost v1.0, pcb was stuffed and with a couple of blue wires was functioning. Tested at 6v to 48v input, with 12v 4amp output. Updated the design to fix the probs, added additional copper, sent out for fab. Moving forward with the rest of the camera controller design.

- Overhead
 - Techfest for Jared and Emily
- Out of Office
 - Nov. 14 - 16 Colorado
 - Dec 22 - 28 Colorado

Week 43

- 901009 - CANON
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
- Overhead
- Out of Office
 - A week or so in November, exact date tbd

Week 42

- 901009 - CANON
 - Debugging button start on battery power
 - Working thru ont-guppy v6.3.8 arm install
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
 - Cable diagrams, cabling for mfet to nanofet for driver dev.
 - Testing industrial microSD
 - New feature dev: experiment duty cycle, m2m, self cal
 - Merging Irene's pico-pH driver
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
 - Board bullets and Project slides for board meeting. Created mosaics
 - Attended Lucendi holographic microscope demo.
- Overhead
 - Staff council
 - Cal Poly tour prep
- Out of Office
 - A week or so in November, exact date tbd

Week 41

- 901009 - CANON
 - Hardware mod for Xavier NX for RTC support
 - Started coming up to speed on software stack rebuild - packages have changed.
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
 - Finished implementing and test of high rate sampling mode for the Wirewalker use case for Tuesday deployment possibility.
 - Working on new feature list. NanoFET as a peripheral, merging pico-ph driver and eddy covariance.
 - CCS v11 git integration appears to have fixed a painful bug that was hampering move to git... Thanks to Irene for blazing that trail.
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
 - Jon is in progress on the Rev2 housing design.

- Ordered cable for battery housing, working to get Paragon deployment setup ready
- Overhead
 - George / Shannon have a conflict for a student tour on Friday Oct 21. Signed up to host the tour along with Chad.
- Out of Office
 - A week or so in October/November, exact date tbd

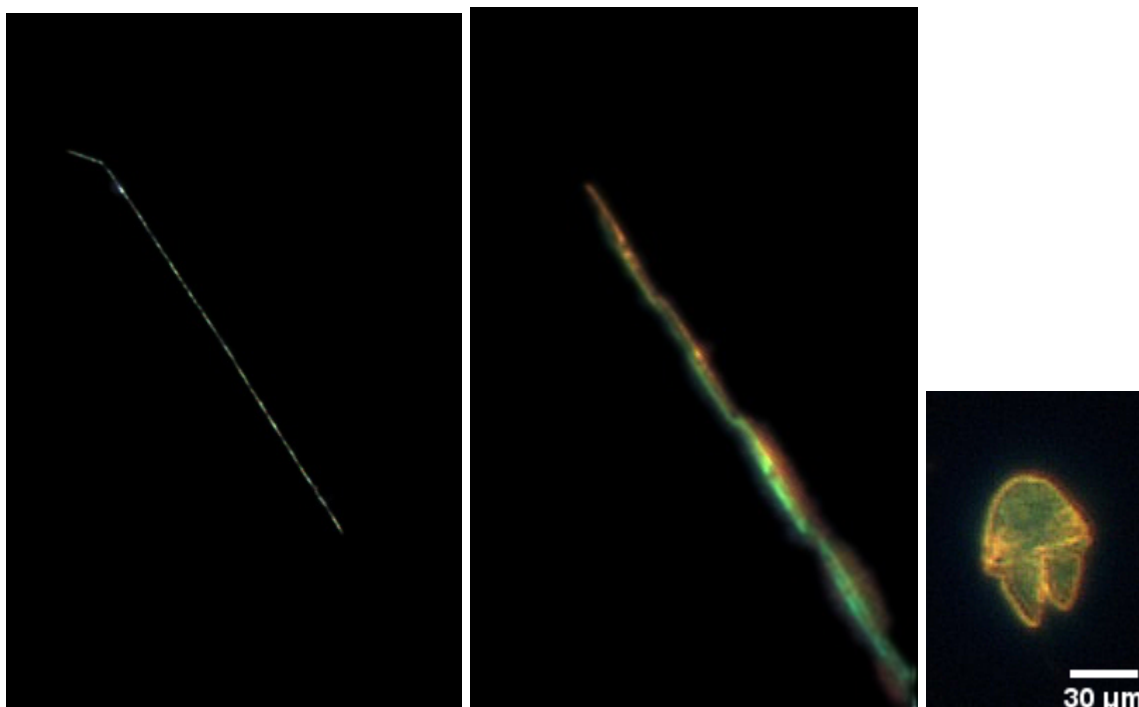
Week 40

- 901009 - CANON
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
 - Met with Yui on remainder of 2022 planning, working on new feature list, update for Wirewalker use case.
 - Ordering industrial microSD 1G SLC cards for filesystem testing.
 - Evaluating Code Composer Studio v12 in hopes it fixes git integration.
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
 - No word yet on Planktivore lab space. Working spray battery storage problem. Ed Pelzer, Jose Rosal helping. Tin shed, high pressure test room,
- Overhead
 - NVidia Jetpack 5.0.2 Webinar. Roadmap notes:
 - Jetpack 6 on linux kernel 5.15 ubuntu 22.04 planned mid 2023. Support for Orin, Xavier is dropped.
 - Jetpack 5.x feature releases for Xavier will end with 5.2 around Apr 2023. Sustaining bug fix releases into 2024.
- Out of Office
 - A week or so in October, exact date tbd

Week 39

- 901009 - CANON
 - Battery backup circuit design
 - Xavier NX rtc parts ordering
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
 - Continuing to run microsd card stress test.
 - Talked with Taylor about Martz lab experience with microsd cards. Found out they are using industrial 2GB cards. Ordered some for test.
 - Working on merge of Irene's code.
 - Preparing release for next two pump deployment to Palmyra.
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
 - Boards and stencil have arrived for boost converter, boost.
 - Camera controller design update in progress
 - Prep and deployment of Spray 34 + Planktivore on Thurs 9/22. Pressure test and dive to 70m for 20min. Yoyo to 200m was scrubbed. Thanks to Jared and Emily for the Paragon support and Brent on shore commanding and analyzing Spray data.
 - Prep and deployment of Spray 34 + Planktivore on Mon 9/26. Pressure test and flight test yoyo to 200m. Thanks to Jared, Joe Warren for Paragon support and Brent on shore.
 - Brent analyzed flight data and found we are a profiling float instead of a glider. Syntactic foam shape is coarse and needs refinement to lower the drag.

- Plankton images were great and Paul's web tool makes access easy.. Many thanks to Colleen for verifying that we are seeing pseudo-nitzschia chains in both the high magnification and low mag microscopes! Looks like Akashiwo in the high mag.



- Overhead
 - Proposal discussion with Andy and Paul
 - Planktivore day in the life filming
 - Primary lithium storage quest
- Out of Office
 - A week in October, exact date tbd

Week 38

- 901009 - CANON
 - Met with Kobun prior to his departure for Peru to discuss next steps after eDNA tacklebox.
- 901713 - Nearshore FOCE
 - Pumps configured by James, Chad is indicating nsFOCE is functioning.
- 901805 - Coastal Biogeochemical Sensing Program
 - Running tests on micro sd cards and ymodem.
 - Joseph tested the pump sequencer and firmware for CENCOOS pier MpHOX - all went well and the system was delivered.
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
 - Design review for rev 2 Planktivore housing with Jon E, Paul R and Brent J.
 - Prep and test Planktivore and Spray 34 for deployment. Brett made quick work of reconfiguring the Spray for Planktivore after I located a connector. Also, many thanks to Brett Hobson helping recover the Spray drop weight off the bottom of the test tank.
 - Worked on Camera Controller pcb design / layout during the PGE battery fire on Tues.
 - Met with Yui regarding Spray and the Planktivore test plan.
- Overhead
- Out of Office
 - Planned Sep Vacation delayed until Planktivore deployment.

Week 37

- 901009 - CANON
- 901713 - Nearshore FOCE
 - Reloaded v3.9.1 on a borrowed MpHOX. Provided two options for pump control to nsFOCE team. Updated nsFOCE MpHOX User's Guide and the MpHOX for labview development.
- 901805 - Coastal Biogeochemical Sensing Program
 - Added support for 128KB FRAM and provided a pre-release of phfet-sos to enable nanoFET lab testing with a durafet.
 - Released v4.1.4 phfet-sos on MpHOX update for CENCOOS. In progress on Wirewalker MFET fast sampling.
 - Continuing to run tests on microSD cards on MpHOX and MFET to create a test case for the bad block problem. So far, no errors using ymodem on 40+ MByte files. Changed the incoming QA procedure for new microsd cards from 'format with windows' to format with microsd card association utility.
 - Working on continuous sampling in deployment for Wirewalker.
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
 - Working deployment plan and coordinating vehicle access with Yui. Window of opportunity to get out on Spray 34 before first of Oct.
 - Working with Brent J. on best course wrt battery replacement.
 - Roman finished Spray blocks with an inaugural use of new water jet. Mobile cart based Planktivore lab...
 - Also, worked Castroville fast access with Greg / Norm - big help.
- Overhead
 - Planktivore Proposal response
- Out of Office
 - 1+ week starting on the 14th is delayed until after Planktivore.

Week 36

- 901009 - CANON
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
- Overhead
- Out of Office
 - 2week Vacation changed to one week in order to work proposal.
 - 1+ week starting on the 14th.

Week 35

- 901009 - CANON
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
- Overhead
- Out of Office
 - 2week Vacation postponed until sometime in early Sept.

Week 34

- 901009 - CANON
 - Working microfluidics quote
 - eDNA toolbox charged up, tested, provided to Kobun for filming.
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
 - Chasing ymodem bugs, found root cause issue was in microsd card f_read fail on MFET, two different MFETs had this problem. Looking into update of FatFS and building a test case
 - Working a bug on MpHOX test menu (no data config'd causes crash).
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
 - Prep Planktivore for deployment
 - Camera controller updates for power reduction, wakestr board bringup, boost converter review package.
- Overhead
- Out of Office
 - 2week Vacation postponed until sometime in early Sept.

Week 33

- 901009 - CANON
 - Microfluidics research for quote
 - Software setup on xavier for minion
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
 - Debugging a ymodem issue.
 - Wirewalker power cycle race condition that caused MFET to stop sampling after 2000+ profiles. Setting up a test harness to reproduce.
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
 - Noot battery housing pressure test prep and test by Aaron S - passed
 - Spray + Planktivore prep for flight test deployment. Lack of lab space is hampering progress.
 - Working on updated camera controller design to reduce power. In progress on board bringup for wakestr v1.1.
- Overhead
 - Staff Council
- Out of Office
 - 2week Vacation postponed until sometime in Sept

Week 32

- 901009 - CANON
 - Working on details for a mock custom microfluidics 'lab on chip' quote to inform CANON proposal budget.
 - Battery charging circuit research
 - Xavier NX and basecamp
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
 - Hallway pitch to Yui for a glass electrode halfcell with solid state AgAgCl electrode. Another ISFET vendor is being pursued so not likely of interest to the Carbon lab.
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore

- Camera control board update. Finished 'Wakestr' design, layout and review with Paul M. Created assembly package and kit of parts. In progress on high efficiency buck-boost converter with support for battery backup to allow linux shutdown in case of power loss.
- Overhead
 - Provided project info to group leads.
 - Move Planktivore project out of Rock Lab. Request for lab space, no answer yet.
 - Intern presentations. Roy G implemented the hot knife release modelled after the SharkCafe Cam release.
- Out of Office
 - 2week Vacation postponed until sometime in August.

Week 31

- 901009 - CANON
 - Xavier NX and basestack
 - Backup battery design
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
 - Suggested using glass electrode (half cell) with solid state Ag'AgCL electrode. Not likely due to previous ISFET investment. Carbon labs are looking at another ISFET vendor.
 - Nanofet software
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
 - Wakestr, smart power supply for power reduction.
- Overhead
 - Responded to request to clear out Planktivore project from Rock Lab. Requested lab space. Moved some of the supplies to Castroville, the rest crowded into new office.
- Out of Office
 - 2week Vacation postponed until sometime in August.

Week 30

- 901009 - CANON
 - Setting up Xavier NX after office move.
 - Laptop setup
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
 - Updated nanofet firmware, met with Scott. It looks like it's ready for analog testing.
 - pH sensor options to replace Honeywell ISFET
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
 - Migrated board sleep power supply design from a personal project for use on Camera Controller. Designed, made review slides, layed out pcb for Wakestr, RTC + Vreg + Sleep and Wake signals.
- Overhead
 - Office move, inventory filtering.
- Out of Office
 - 2week Vacation postponed until sometime in August.

Week 29

- 901009 - CANON
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program

- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
- Overhead
- Out of Office
 - Vacation 6/23 -,6/28. Colorado
 - Was Jul 6 - 19, Now Jul 8, 11. Additional 2 weeks vacation deferred until after phase 1. Camping, Bear Lake Monster Swim

Week 28

- 901009 - CANON
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
- Overhead
- Out of Office
 - Vacation 6/23 -,6/28. Colorado
 - Was Jul 6 - 19, Now Jul 8, 11. Additional 2 weeks vacation deferred until after phase 1. Camping, Bear Lake Monster Swim

Week 27

- 901009 - CANON
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
 - NanoFET hardware debug
 - IrDA / Bluetooth dongle electronics
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
 - 2023 Phase 1 proposal (overhead)
 - Camera Controller, Strobe Driver and Strobe hardware updates.
- Overhead
 - Planktivore Proposal
 - Support for other proposals
- Out of Office
 - Vacation 6/23 -,6/28. Colorado
 - Was Jul 6 - 19, Now Jul 8, 11. Additional 2 weeks vacation deferred until after phase 1. Camping, Bear Lake Monster Swim

Week 26

- 901009 - CANON
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
- Overhead
- Out of Office
 - Vacation 6/23 -,6/28. Colorado
 - Jul 6 - 19 Camping, Bear Lake Monster Swim

Week 25

- 901009 - CANON
 - Debugging startup switch issue when started on battery without wall supply
 - Nomachine setup for Xavier NX.
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
 - Draft of phase 1 proposal
 - Researching lower power hardware options capable of openCV + nvme + global shutter imager.
- Overhead
- Out of Office
 - Jun 12 - 22? Arrived Colorado 6/15. Remote work from Colorado for elder care.
 - Jul 6 - 19 Camping, Bear Lake Monster Swim

Week 24

- 901009 - CANON
 - eDNA lunchbox software update
 - Battery backup circuit debug.
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
 - Packed the dev box for remote work.
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
 - Assembled Noot with temporary bracket for mounting to Planktivore. Tested in the harbor for 10 minutes and again in the test tank. Planktivore 'imaging at depth' feature was tested, works great.
- Overhead
- Out of Office
 - Jun 12 - 22? Arrived Colorado 6/15. Remote work from Colorado for elder care.
 - Jul 6 - 19 Camping, Bear Lake Monster Swim

Week 23

- 901009 - CANON
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
- Overhead
- Out of Office
 - May 27 - 31 Camping at Caswell Memorial Park by Stanislaus river
 - Jun 12 - 22? TBD. Remote work from Colorado for elder care.
 - Jul 6 - 19 Camping, Bear Lake Monster Swim

Week 22

- 901009 - CANON
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
 - Support for Spray pH and OCR-504 integration
- 902000 - Multi-Spectral StealthCam

- 902004 - Planktivore
 - Planktivore has been removed from Spray.
 - Working on assembly and test of Noot housings.
 - Brackets for mounting Planktivore to Noot.
 - Replace failed (due to bad cable) harddrive in DeepRip. Paul ran an eyris processing job that pegged all 128 threads on 64 cpus. Processor temp was getting close to 70 C, fans remained quiet.
- Overhead
- Out of Office
 - May 27 - 31 Camping at Caswell Memorial Park by Stanislaus river
 - Jun 12 - 22? TBD. Remote work from Colorado for elder care.
 - Jul 6 - 19 Camping, Bear Lake Monster Swim

Week 21

- 901009 - CANON
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
 - Wired up MFET+OCR504 to the Spray chassis in BOG lab to enable remote dev by Brent.
 - Worked on nanoFet, configured ads1248 for all inputs, however that did not solve the current draw problem.
 - Working on bug fixes / enhancements for mphox/mfet.
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
 - Test and prep for Monday deployment of Planktivore on Spray with dive to 150m over the canyon. Canceled due to Covid exposure.
 - Handing Spray over to the Carbon Lab. Removed Planktivore and transferred to table cart to enable Chris or Brent to do the battery swap and reconfig in B109
 - Assembly and test of Noot battery housing. Working alternate deployment plans to test pressure gated sampling and collect more plankton data.
 - Paul setup ZFS to pool nvme drives on DeepRip. We debugged the sata drives and found power supply cables that were not compatible (corsair vs evga). One of the four drives was bad. RAID controller on the motherboard setup was problematic however ZFS handled pooling the drives wonderfully.
- Overhead
- Out of Office
 - May 27 - 31 Camping
 - Jul 6 - 19 Camping, Bear Lake Monster Swim

Week 20

- 901009 - CANON
 - Created an account for Katie Pitz on DeepRip for a bioinformatics run.
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
 - Support for Brent on integration of MFET with OCR504.
 - Starting to organize parts ordered from Chinese contract manufacturers for an MpHOX, MFET build.
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
 - Post cruise engineering data. Investigated Spray primary lithium battery behavior under load. Canceled Monday's deployment on Sunday.
 - Working on a cruise plan / checklist doc. Trying to get Planktivore out one more time before handing the vehicle to the Carbon Lab.

- Attended Embedded Vision conference in Santa Clara. Talked to various vendors about low(er) power solutions for Dual 12MPixel, 12Bit, image pipelines with OpenCV support. Amberella was recommended by Leopard Imaging. AI at the Edge was the theme of the show.
- Exploring Xilinx and Lattice FPGA product offerings
- Overhead
 - Staff council meeting.
 - Went on a Waveglider deployment with Jared (Chris out sick) and was able to have recent hire Lenka go out as crew.
 - Office move coordination with Greg Voogd. Best plan is to wait until Danelle's office gets a 20amp dedicated service. Looks like mid-June. In the meantime will use B109 for Spray Glider support.
- Out of Office
 - TBD trip to Montana.
 - May 27 - 31 Camping
 - Jul 6 - 19 Camping, Bear Lake Monster Swim

Week 19

- 901009 - CANON
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
 - Worked with Irene on nanoFET, will resume after wrapping up another project.
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
 - Roman M has done a great job fabricating the Planktivore+Spray service cart spec'd by Brent
 - Tank testing the Spray comm's roll, turtle roll
 - Plankton imaging and lighting adjustments in a bucket of seawater from the shore.
 - Pre-deployment testing and checklist for both Spray
 - Deployment on Wednesday, 40m depth envelope resulted in 54m max depth due to overshoot. We aborted the 2nd yoyo as we ended up with too little depth margin to the bottom and the wind was starting. Thanks to the Plantivore team for the great effort pulling it together. The plankton images are wonderful.
 - We are working towards a Monday May 16th mission with greater depth and longer range along the C1 to M1 line.
- Overhead
- Out of Office
 - TBD trip to Montana.
 - May 27 - 31 Camping
 - Jul 6 - 19 Camping, Bear Lake Monster Swim

Week 18

- 901009 - CANON
 - eDNA meeting to discuss plans and coordination between wet side team and sequencer/bioinformatics effort. Very helpful.
 - Reading about BentoBox
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
 - Worked with Irene on nanoFET and discuss plans for use of tagging in git.
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
 - Worked with Paul and Denis on housing assembly.

- Worked with Paul to resolve software issues on camera controller and setup of nomachine for remote access to XavierNX - learning opportunity.
- Ballast and trim Planktivore
- Mounted Planktivore on Spray with revised foam. Comms roll maneuver was successful, almost too good. Brent J says good to go.
- Working plans for engineering test at sea next week.
- Overhead
- Out of Office
 - TBD trip to Montana.
 - May 27 - 31 Camping
 - Jul 6 - 19 Camping, Bear Lake Monster Swim

Week 17

- 901009 - CANON
 - GPU laptop assist
 - Setup base NVidia image (x2) for Xavier NX in eDNA lunchbox.
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
 - Working to be deployment ready on 5 May and in the water on Spray 10 May, drafted punch list
 - Worked with Paul R to finish camera control board bringup, invert trigger signal.
 - Base configuration of 3x Xavier NX + 2TB Samsung 970 with the latest Jetpack 4.61,
 - Benchtop 'soak' test of two cameras, camera controller and xavier nx over the weekend. No problems, but no ROI's either as the cameras are pointed at nothing.
 - Porting i2c driver for Keller PA7LD pressure sensor from whaleshark tag.
 - Worked with Denis to provide design requirements and test his acrylic lens extractor - works great! We are now enabled to move forward with cameras in housings.
 - Worked with Jon to get o-ring analysis on reduced (2.738) diameter acrylic.
 - Worked with Aaron on pressure test plan using the Noot housing filled with RO water with compensation. Test started 25 Apr, 10 cycles to 750 psi, with an hour hold time at 750 on one cycle. Passed test for 500m.
 - 2nd camera controller board is stuffed with low profile (expensive!) machine pin headers, in progress on benchtop integration test.
 - In progress on Xavier NX, camera control mounting in compute node. Wiring diagram, in progress on housing wiring with help from Denis.
 - Worked with Aaron on revised syntactic design to address buoyancy / trim challenges. So far so good with Aaron's water jet approach. Reviewed foam calcs with Paul and found I made an error but we can trim the length to compensate.
- Overhead
- Out of Office
 - TBD trip to Montana.
 - May 27 - 31 Camping
 - Jul 6 - 19 Camping, Bear Lake Monster Swim

Week 16

- 901009 - CANON
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
- 902000 - Multi-Spectral StealthCam

- 902004 - Planktivore
- Overhead
- Out of Office
 - TBD trip to Montana.
 - May 27 - 31 Camping
 - Jul 6 - 13 Camping

Week 15

- 901009 - CANON
 - Got out eDNA sequencing and species id tackle box running, finished testing the battery backup circuit.
 - Meetings with Johns Hopkins team. Thanks to Kevin Gomes for help with Slack. Learned about the ESP efforts.
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
 - Released v4.1.1 pHFET-SOS for MFET on Wirewalker, MFET+OCR504 on Spray, and MPHOX for Cal Poly Pier deployment. Lab testing in progress.
 - Worked with Jacki on test plan.
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
 - Buoyancy test on Monday in the Test Tank followed by Buoyancy test of Planktivore on Spray.
 - Working thru measurements and fitment of optical chassis in titanium housing.
 - Met with Yui on Spray schedule, met with team on date for Spray deployment. We are aiming for at sea testing on Spray by May 10. Lots to do.
- Overhead
- Out of Office
 - TBD trip to Montana.
 - May 27 - 31 Camping
 - Jul 6 - 13 Camping

Week 14

- 901009 - CANON
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
- Overhead
- Out of Office
 - TBD trip to Montana.
 - May 27 - 31 Camping
 - Jul 6 - 13 Camping

Week 13

- 901009 - CANON
 - Working with Kobun and Paul C on eDNA tacklebox requirements.
 - Talked with Kobun about project priorities as both Paul and I are timeslicing to support other projects - doing what we can without adding stress.
 - Battery testing and chem chiller testing.
 - Setup of Xavier NX for dev, not sure I'll get to the new basestack install.
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program

- Support for Wirewalker/RBR - added posix timestamp, 2 second sampling, implemented init fix per Scott Jensen that solved a spurious character problem at wakeup.
- Chasing ymodem bug which turned out to be specific to a version of teraterm and not a pHFET-SOS bug.
- Finishing revised CTD driver.
- Testing Spray version of the MFET code with OCR-504 and pH support.
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
 - Weekly meeting
 - Assembly and test of 0.5x and 4x microscope 'pipes' with Aquavore. Working with Paul R and Denis on tuning lighting and alignment.
 - Overlapping Denis schedule has worked well, he has completed test setup and strobe assembly to perfection. EE-Techs have built deployment set of strobe boards for the titanium housing.
 - Imaging of plankton on 30 Mar in Aquavore milestone.
 - Larry has completed Spray mount, syntactic foam, housing on 30 Mar, another milestone. Arranged Todd Walsh photoshoot.
 - Working with Larry to transition remaining tasks on Fluum to Aaron / Roman. Arranged with Norm to have Larry onsite next week to walk us through dis-assembly and assembly of the housing.
 - Received Spray batteries!
- Overhead
 - DEI training
- Out of Office
 - TBD trip to Montana.
 - May 27 - 31 Camping
 - Jul 6 - 13 Camping

Week 12

- 901009 - CANON
 - Working eDNA tackle box design with Nanuk case. Met with Nate to go over requirements then met with Paul Coenen to give overview and priorities.
 - Xavier NX to Kent.
 - Reading thru basestack release notes.
 - Ordered battery options for new tackle box and spin box as well as a compact freezer for the chemistry.
- 901713 - Nearshore FOCE
 - Debrief with Chris on results from Octopus garden cruise. Have not had a chance to diagnose the battery voltage measurement discrepancy.
- 901805 - Coastal Biogeochemical Sensing Program
 - Big push to wrap up development and release v4.x pHFET-SOS for lab testing.
 - Working to understand Seabird SBE37 SI firmware change. Opened a support case with Seabird, waited, escalated to the tech support manager, waiting... Working on a driver that handles both 'old' and 'new'.
 - Purchased parts from Chinese contract manufacturer inventory for a quantity 35 build of mphox and mcap thru Aliexpress. Most parts were showing 2Q2023 lead times from US distributors.
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
 - Weekly meeting...
 - We hit a milestone. Using camera GPIO as trigger, fired the strobe and imaged with revised optical path (prism, camera and telecentric lens) in Aquavore. Wahoo.
 - Working with Denis on best way to wire things up for testing and moving the 2 camera / microscope assemblies between Aquavore and Fluum. Denis' test setup design is great, well thought out.
 - Housing went out on the Flyer cruise for pressure test, have not heard results yet.

- Working on Noot battery pack assembly.
- Syntactic foam design is complete and Larry is in progress on the fab. He has designed the Spray mount and is expecting to finish by retirement. Congrats to him on 25 years (as of Mar 17). Very much appreciate his work ethic.
- Paul has revised the optical path, working thru the finer points of a custom prism mount. He's finished the mods for the retaining pins on the strobe ball array.
- Overhead
 - Had an opportunity for growth working thru a 'kerfuffle'
 - Helping Giancarlo with equipment loans of embedded compute and cameras
- Out of Office
 - Mar 28 to Mar 30 Driving to Montana, flying back. (Canceled due to project commits)
 - May 27 - 31 Camping
 - Jul 6 - 13 Camping

Week 11

- 901009 - CANON
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
 - Parts purchased for MCAP / MpHOx, qty=30. Sourced most of the ICs on Aliexpress, hoping the Shenzhen shutdown does not affect delivery.
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- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
- Overhead
- Out of Office
 - Mar 21 to Mar 30 Driving to Montana, flying back. (Dates might change)
 - May 27 - 31 Camping
 - Jul 6 - 13 Camping

Week 10

- 901009 - CANON
 - Looking at battery and battery management options.
- 901713 - Nearshore FOCE
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- 901805 - Coastal Biogeochemical Sensing Program
 - Working on pHFET-SOS v4.x release.
 - Provided support and updated firmware with new pump sequencer for octopus respirometer experiment.
 - Debrief with Chris L. on octopus respirometer experience.
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
 - LED Strobe assembly and test
 - Setup and test in the Rock Lab
 - Camera and lens assembled on Paul's frame. Working thru assembly process to add Strobe.
 - Paul found an optical path length problem, working on a solution
 - Larry has completed the titanium housing fab. Pressure test will be on an ROV dive to 1200m Mar 17. Larry is working on Spray Mounting bracket and foam.
 - Denis' Aquavore is assembled and Paul ran first image test.
- Overhead
- Out of Office

- Mar 21 to Mar 30 Driving to Montana, flying back. (Dates might change)
- May 27 - 31 Camping
- Jul 6 - 13 Camping

Week 9

- 901009 - CANON
 - Meeting with Francisco, Nate, Kent
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
 - Pump sequencer for Barry lab octopus garden
 - Bug fixes, new features
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
 - LED Strobe assembly in progress. We'll have lighting and cameras ready for test when the strobe is finished.
 - Energy board update is in progress.
- Overhead
- Out of Office
 - Mar 21 to Mar 30 Driving to Montana, flying back.
 - May 27 - 31 Camping
 - Jul 6 - 13 Camping

Week 8

- 901009 - CANON
- 901713 - Nearshore FOCE
 - James McClure is frontending the MpHOx board support quite nicely. roi.
- 901805 - Coastal Biogeochemical Sensing Program
 - OCR-504 support is in place for MFET. Driver, config, and sampling are tested. Ready for Spray integration testing.
 - Pump sequencer framework in place for BEAMS v1, Barry Lab octopus respirometer exp, self calibrating MpHOx. In progress on state machine implementation.
 - Met with Chris Lovera regarding octopus respirometry. We rescheduled the firmware upgrade until Thursday as hardware is being scrounged. Deployment is next Wed.
 -
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
 - Rock Lab is in use for rock cutting next week. Fluum moved into hallway and covered. Denis is looking into an alternative space.
 - Strobe boards with revised optical spacing are due in Friday, parts kit, assembly request in place.
 - Larry is making wonderful progress on the Titanium housings. Spray mounting bracket, compute chassis, fluum imaging section are in the todo list of this good worker as his impending retirement looms.
 - Denis has finished assembly of Aquavore imaging aquarium. Testing can commence when lab space is resolved.
- Overhead
 - Contingency project: Serial Monster 10 pcb assembly of the processor section is complete.
- Out of Office
 - Mar 21 to Mar 30 Driving to Montana, flying back.

Week 7

- 901009 - CANON
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
- Overhead
- Out of Office
 - 8 Feb day off for bereavement
 - Mar 21 to Mar 30 Driving to Montana to help daughter move

Week 6

- 901009 - CANON
 - Started a conversation on Slack with Kent and Nate for embedded software to support eDNA processing workflow
 - Battery options.
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
 - Working on new datalogging/controller mode for BEAMS and Barry lab
 - New features, bug fixes
 - Instrument driver OCR-504
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
 - Monday engineering meeting. Larry is finishing titanium work, beautiful stuff.
 - Updating LED strobe for proper optical spacing beneath lenses
 - Received updated strobe_energy board, kitting for assembly
 - Met with Larry/Paul to review optical chassis mounting
 - Pressure sensor wiring, dimension
- Overhead
- Out of Office
 - 8 Feb day off for bereavement
 - Mar 21 to Mar 30 Driving to Montana to help daughter move

Week 5

- 901009 - CANON
 - Working to draft a notional project plan for the embedded eDNA processing project.
- 901713 - Nearshore FOCE
 - Not needed at the meeting, on standby for to help support pH.
- 901805 - Coastal Biogeochemical Sensing Program
 - Working on release of v4.x pHFET-SOS with support for nanoFET, new sampling routine for BEAMS and the Barry lab, m2m protocol enhancements, bug fixes.
 - Handed off nanoFET programmed and tested to Scott for hardware checkout. Need to thoroughly review/test the menu system and config. QA works, ADC test code works.
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
 - Working on inventory of parts ordered, kitting, and expense report.
 - Board bullets reviewed and submitted.
 - Strobe, strobe energy, strobe driver boards are functional. Improvements are planned and most interesting is Paul's new circuit idea for thermal protection.
 - Cam_ctrl board bringup with VS code PlatformIO.

- Strobe board was found to need a revision to place the LEDS under the acrylic ball lens with correct optics
- Hosted Monday engineering meeting, working to improve meeting format.
- Overhead
 - Contingency project on Thursday afternoons
- Out of Office
 - Mar 21 to Mar 30 Driving to Montana to help daughter move

Week 4

- 901009 - CANON
 - Met with Nate to discuss 'functional notions' of next eDNA lunchbox build.
 - Team selected Yellow and agreed on Pelican 1200 / 1300 for form factor.
 - Researching battery options.
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
 - Updating nanoFET support in pHFET-SOS. Programming the two boards for Scott to test hardware build.
 - Met with Yui on m2m interface for pHFET-SOS. Also discussed data dongle.
 - Working on release of pHFET-SOS v4.1
 - Comm protocol discussions with Irene.
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
 - Planktivore status update for Francisco, Henry, Paul and Steve H.
 - Started weekly Planktivore engineering meetings on Monday 1pm.
 - Testing Strobe, Strobe_Energy, Strobe_Driver boards.
 - Updated Strobe_Energy layout to move components off the bottom side to relieve tight fit. Out for fab.
 - Parts kit for build of cam_ctrl and assembly instructions delivered to James, board is assembled and ready for bringup.
- Overhead
 - Contingency project on Thursday afternoons
- Out of Office
 - Mar 21 to Mar 30 Driving to Montana to help daughter move

Week 3

- 901009 - CANON
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
- Overhead
- Out of Office
 - Vacation delayed but needed.

Week 2

- 901009 - CANON
 - Meetings with Nate and Johns Hopkins team over next steps on eDNA effort. The portable battery operated eDNA lunchbox is the focus.
 - My order for 2 made in Nov 2021 was cancelled in Jan with refund. Purchased a Xavier NX off ebay in order to return the loaner to another project. Told to hold off purchasing a 2nd.
- 901713 - Nearshore FOCE

- 901805 - Coastal Biogeochemical Sensing Program
 - Working on v4.x release, bug fixes, features.
 - Spray planning meeting
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
 - Found a copper pour problem on the Camera Controller pcb, fixed and sent out to Bay Area Circuits for fab on the 9th, boards due on the 13th.
 - Held project kickoff on Wednesday. Great discussion and appreciated Colleen Durkin's interest, thanks to Francisco for inviting her.
 - Parts are coming in from the Aliexpress order.
 - Harddrive failed on Larry's mill, ordered a refurbished drive and channeled Zorba to do the fix. Got the floppy drive working, Win 95 mill software installed and parameters loaded in the 25+ year old Sony industrial PC.
 - Larry has the compute node housing machined and is starting on the microscope housings.
 - Meeting with Paul to discuss requirements for imaging section on Fluum, fast turn optics frame prototype options for Fluum. 3D printed housings are planned for Fluum and thanks to Paul we have a thermal management plan as well.
- Overhead
 - Contact tracing departure on Wednesday, packed up project boxes, tested on Friday, brought everything back on Monday. Worked a day on the weekend.
- Out of Office
 - Vacation delayed but needed.

Week 1

- 901009 - CANON
 - Worked right thru the meeting with Nate / JHU. Follow up meeting scheduled on Monday (with google calendar reminder on my phone).
- 901713 - Nearshore FOCE
- 901805 - Coastal Biogeochemical Sensing Program
 - Met with Yui and Jacki to overview pHFETSOS usage, setup tests, and prep for bugfest on v4.
 - Brought OCR and MFET to my house to work on the driver for the Spray deployment..
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
 - Where there's smoke, there's ... Larry Bird has been 'on fire', machining titanium for the compute node housings. Joy.
 - Last minute review on the endcap and connector placement. Ethernet connector moved to improve the 'meat'.
 - First rev of Camera Control boards sent out for fab on the 26th arrived on Jan 4 and parts kit and manufacturing request for a build of 2 sent to EE Techs
 - Parts are arriving from China just in time for the Camera Control build.
 - Jon E provided the 100m nb battery housing design prints and we had a doorway review. A couple minor tweaks and it will be submitted to the shop for fab (qty 2). First class job by Jon.
- Overhead
 - Many thanks to Kent for another git coaching session.
 - Invited to High School tech advisory meeting Jan 12.. Looped in Brett Hobson also.
- Out of Office
 - Vacation delayed