

Thom Maughan

Week 52

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
 - Minor deeprip maintenance
- 901805 - Coastal Biogeochemical Sensing
 - Met with Yui on release plans for pHFETSOS v3.9.2 and v4.x
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
- 902004 - Planktivore
 - Camera controller design and layout complete, board is out for fab
 - Starting on VS code / platform.io for camera control firmware
 - Reviewing housing design details as Larry is beautifully fabricating the compute housing.
 - Reviewed Jon's neutral buoyancy 200m battery housing
- Overhead
- Out of Office
 - Vacation delayed

Week 51

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
 - Meeting with Nate, elevator chat with Francisco.
 - Adding user accounts on DeepRip.
- 901805 - Coastal Biogeochemical Sensing
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
- 902004 - Planktivore
 - Meetings with Larry and Paul R.
 - Review of housing, fitment, wiring and connectors with Paul Coenen.
 - Working to finish camera_controller board design and layout and get it out for fab.
 - Global parts scrounging. Electronics and connectors are hard to source.
 - Strobe, Strobe_energy, and Strobe Driver boards are assembled and ready to test. (thanks Jim Mo)
- Overhead
- Out of Office
 - Vacation is TBD, sometime end of Dec. Staycation.

Week 50

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
 - Demonstrated the OCR-504 driver to Yui and Jacki. Next step is to get HyperOCR up and running.
- 902000 - Multi-Spectral StealthCam

- 901713 - Nearshore FOCE
- 902004 - Planktivore
 - DC/DC current limit testing. Polulu D36V50Fx is a great product.
 - Strobe, Strobe_Energy, and Strobe_Driver boards were sent out for fab on Thurs night. Worked thru tight spacing and 40amp/20usec for connectors.
 - In progress on the design and layout of the Camera Controller board. Designing around supply chain shortages is challenging - chips and connectors.
 - Parts inventory
- Overhead
- Out of Office
 - Vacation is TBD, sometime end of Dec. Staycation.

Week 49

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
 - Looking into SquiggleNet for real time control of nanopores in the minion sequencer.
 - DeepRip ssh access resolution
- 901805 - Coastal Biogeochemical Sensing
 - Discussions with Yui
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
- 902004 - Planktivore
 - Parts ordering
 - Fitment review last Thursday with Larry and Paul. My preliminary design needed to be broken into smaller boards and mounted at the back of the optics frame.
 - Strobe v1 is complete, ready for fab. Connector selection challenges due to 40amp 20usec pulse, small area and tight board stack requirement. Found some good white papers about pulsed currents by Samtec and Tyco.
 - Strobe Energy v1 is complete and ready for fab.
 - Strobe Control v1 is in progress.
 - Met with Yui about Planktivore on Spray and goal for mid-March deployment. At issue is we are down to one Spray Glider due to housing corrosion on the 2nd Spray.
- Overhead
- Out of Office
 - Vacation is TBD, sometime end of Dec. Staycation.

Week 48

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
- 902004 - Planktivore
- Overhead
- Out of Office
 - Working from home once a month on Wednesday (child/school) (Nov 3, Dec 1)
 - Nov. 10,11,12 Vacation in Dallas, TX

Week 47

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
- 902004 - Planktivore
- Overhead
- Out of Office
 - Working from home once a month on Wednesday (child/school) (Nov 3, Dec 1)
 - Nov. 10,11,12 Vacation in Dallas, TX

Week 46

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
 - Met with Nate to discuss software for close loop control of minion eDNA sequencer, Squiggle. Read paper, looked at github repo.
 - DeepRip user's notified of rebuild. Purpose of rebuild is move from Ubuntu 21 to 20.04 LTS and tuning the RAID for storage media.
- 901805 - Coastal Biogeochemical Sensing
 - A round of bug fixes while in Texas and support for Irene
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
- 902004 - Planktivore
 - Housing design is moving forward nicely. Working thru the details.
 - Battery housing requirements updated
 - Parts ordering and receiving
 - Rock lab cleaning. Many thanks to Denis for spearheading.
 - Working on strobe and strobe control
- Overhead
- Out of Office
 - Working from home once a month on Wednesday (child/school) (Nov 3, Dec 1)
 - Nov. 10,11,12 Vacation in Dallas, TX

Week 45

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
 - Verified ADS1284 functionality for components bought from Shenzhen via agent
 - Support for MFET/MPHOX firmware.
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
- 902004 - Planktivore
 - Meetings with Larry and Paul to review task list on housing design
 - Working with Denis on new lab location for optics testing. Setup laptop with software for machine vision cameras, handed off to Denis.
 - Project management, expense, budget

- Strobe controller electronics design
- Overhead
- Out of Office
 - Working from home once a month on Wednesday (child/school) (Nov 3, Dec 1)
 - Nov. 10,11,12 Vacation in Dallas, TX

Week 44

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
 - Ordered Xavier NXs to replace those borrowed from Plantivore, delivery expected Jan 2022.
 - Ordered const current dc/dc conv for eDNA box battery pack
- 901805 - Coastal Biogeochemical Sensing
 - Review of nanoFET updated design with Scott and Yui
 - Received ADS1248 from China, testing the quality.
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
- 902004 - Planktivore
 - Met with Larry as he's back from vacation, wrapping up another project and should start Planktivore soon. Reviewed connector and pressure sensor plan for compute node. Titanium is required.
 - Located titanium pressure sensor from Keller. Quote requested, ordered.
 - Met with Paul to review progress. Quote and ordering cables and connectors
 - Budget update to Grants office / Henry
 - Laptop setup for Denis to use for optics testing
 - Lab space for particle flow tests in Fluum
- Overhead
- Out of Office
 - Working from home once a month on Wednesday (child/school) (Nov 3, Dec 1)
 - Nov 5 Vacation
 - Nov. 10,11,12 Vacation in Dallas, TX

Week 43

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
 - Looking at options for 'safe' rechargeable batteries in portable DNA sequencer box
- 901805 - Coastal Biogeochemical Sensing
 - Discussed possible options for nanoFET in 2022 rather than 2023 with Scott and Yui. Processor and ADS1248 order. Ordered parts for IrDA dongle for 2022 work.
 - Support QA of MFETs and setup of a dedicated laptop so we can return loaner.
 - OCR cable checkout for MFET.
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
- 902004 - Planktivore
 - Draft of standalone battery pack requirements to Jon E.
 - Highest priority has been electronic parts ordering, design substitutions for camera control, strobe control and strobe designs.
 - 24MP global shutter cameras ordered.
 - Spray Batteries ordered (x2)
 - Measurements and connector spec for Spray to Planktivore cable.

- Working lab space request for Fluum particle motion testing, thanks Doug for the help.
- Charge coding and budget update
- Looking at possible Fluorometer options (triggering) for Planktivore connector spec
- 3D printed housings are done.
- Overhead
- Out of Office
 - Working from home once a month on Wednesday (child/school) (Nov 17, Dec 15)
 - Nov. 10,11,12 Vacation in Dallas, TX

Week 42

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
 - Meeting with Scott and Yui.
 - Chip shortage is pushing nanoFET to 2023 based on electronics lead times. Gave Scott the nanoFET. Delivered 'bad boards' to be used for parts salvaging. Found and ordered processors.
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
 - Helped Chad troubleshoot pH readings. Identified Durafet wiring as one of the causes.
 - Showed MpHOX software usage, configuration settings
- 902004 - Planktivore
 - Project status meeting for Steve H, Francisco, Henry and Paul
 - Meetings with Denis. Parts for optical bench setup have been delivered and a few additional for secure mounting have been ordered. Tasks and schedules and risks discussed.
 - Temporary lab space request for fluum setup and flow testing
 - CamControl and Strobe parts ordering, painful to have inventory disappear from a digikey shopping card and see lead times of 76+ weeks! Sourcing thru multiple distributors, most parts have been ordered with only a few substitutions needed. Working on substitutions
 - Thanks to Brent and Cindy for assist with Spray battery order. Brent also supplied info on Spray to Planktivore connector and cabling.
 - Working on schematic / layout.
 - Draft of standalone battery pack requirements for Jon.
- Overhead
 - Attended seminar
- Out of Office
 - Working from home once a month on Wednesday (child/school)
 - Taking son to 8:30am wisdom tooth extraction on Wed. 27 Oct, should be in by lunch.
 - Nov. 10,11,12 Vacation in Dallas, TX

Week 41

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
- 902004 - Planktivore
 - Project schedule discussions, one on one, with Larry, Denis, Jon, Duane.
 - Critical path (housing) commit is in place.

- Shoreside ingest software deferred until 2022
- Benchtop image quality breadboard
- Jon to work battery housing with remaining hours in 2021
- Working BOM and supply chain challenges.
 - Ordered 5MP global shutter cameras from FLIR ahead of image quality test, 25% restocking fee, due to low inventory alert from a distributor
 - Ordered LEDs
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- Installed
- Overhead
- Out of Office
 - Working from home on every other Wednesday
 - Nov. 10,11,12 Vacation in Dallas, TX

Week 40

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
 - Found the Eclipse Egit tutorial and sent that to Irene. She is now functional using Code Composer Studio Egit, though we still have a ways to go on git setup and usage.
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
 - James Mc is providing mphox firmware programming support, QA Box is a success.
 - Sent email weekly status
- 902004 - Planktivore
 - Working towards a Feb. 15, 2022 at sea test on the Spray Glider.
 - Met with Jon E. on best use of his limited time for 2021. We'll be targeting the waveglider towbody as a test platform to tow behind the Paragon or other small boat. He needs a draft of Planktivore housing design files in 902004 project library before proceeding.
 - Met with Brent Jones, mostly on glider availability and integration. He indicated one of the gliders was done due to pinhole leak in buoyancy bag. Heard from Yui that a replacement is coming from Scripps.
 - Met with Duane on 2021 availability and task list.
 - Met with Denis on 2021 availability and task list.
 - Not yet able to meet with Larry yet or get email response about when he is able to start as he's been busy on other projects.
 - DeepRip setup by IS has been requested. On a side note, Andy asked questions about crypto mining on HiPP rigs and I sent a note to Todd Ruston to see if there are tools to detect.
 - Started on board bullets and other m-team requests for project status.
- Overhead
 - Office and lab cleaning, organizing.
- Out of Office
 - Working from home on every other Wednesday
 - Nov. 10,11,12 Vacation in Dallas, TX

Week 39

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing

- Committed first draft of updated serial driver to bitbucket for Irene, working thru git challenges.
- Started software management document to aid the long term voyage to using git.
- Git integration in Code Composer Studio has presented challenges, along with being git newbies.
Thanks to Kent for his steady support and knowledge transfer.
- 902000 - Multi-Spectral StealthCam
 - PWM board checkout. Plan is to work with James Mc once a basic firmware is running.
- 901713 - Nearshore FOCE
- 902004 - Planktivore
 - Mechanical integration meeting on Monday
 - Submitted 2022 implementation plan to Mandy
 - Project planning. Who, what, when.
- Overhead
 - Moved all mbari equipment and supplies from home office back to mbari, which touched off a need to organize and clean.
- Out of Office
 - Working from home on Wednesdays
 - Nov. 10,11,12 Vacation in Dallas, TX

Week 38

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
 - Nate ran Katy's Qiime2 workflow successfully on DeepRip. The bioinformatics code did not utilize the high core count, but did basque in the luxury of 256GB RAM.
- 901805 - Coastal Biogeochemical Sensing
 - Git integration with CCS is working and Irene is functional with CCS and the v3 codestream on the Mac. Next is to figure out how to fork the v4 code stream.
 - Re-wrote uart / optode / ctd drivers to enable Irene's driver development for vector velocimeter driver.
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
- 902004 - Planktivore
 - Met with Paul and Larry to review planktivore housing design. Larry is planning fabrication starting next week. Requested 3D printed version of the imaging housings for use with Fluum integration.
 - Met with Jon E. to discuss Spray mounting bracket task.
 - Project planning and development setup.
- Overhead
 - Cleaning and organizing.
 - Bystander intervention training / Hollabeck.
- Out of Office
 - Nov. 10,11,12 Vacation in Dallas, TX

Week 37

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
 - Ubuntu 21.04 installed on DeepRip to enable Chavez lab (Katy) to run a bioinformatics dataset that is crashing on the mbon virtual machine. For this run, EXT4 used on updated Samsung 980 2TB drives. Collecting benchmarks to compare with forthcoming ZFS experiments.
- 901805 - Coastal Biogeochemical Sensing

- Git repo setup in bitbucket. Test both command line and Code Composer Studio git integration setup and documented for Irene. Thanks to Kevin and Kent for support and guidance.
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
- 902004 - Planktivore
 - Setting up Deep6 laptop with latest development environment.
 - Working on project planning.
- Overhead
- Out of Office
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Week 36

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
- 902004 - Planktivore
- Overhead
- Out of Office
 - Vacation last week in Aug for memorial and family reunion in Colorado. 25 Aug to 3 Sep.

Week 35

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
- 902004 - Planktivore
- Overhead
- Out of Office
 - Vacation last week in Aug for memorial and family reunion in Colorado. 25 Aug to 3 Sep.

Week 34

- 300083 - DMO Support LRAUV
 - Locating hardware to work with Tanner
- 300070 - DMO Support Ventana
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
 - pHFET-SOS bug fixes and enhancements are finished the release is done for MPHOX/MFET firmware. Release notes updated, procedure for nsFOCE firmware updated and config written.
 - Attended NanoFET analog temperature sensitivity data review. NanoFET v2 was given the green light.
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
 - Working with Dale on MPHOX to Labview communications. Implemented a firmware change to simplify the Labview code.
 - James Mc is planning to update the 10 nodes on nsFOCE this week.

- 902004 - Planktivore
 - Assembling parts, getting organized.
 - Met briefly with Larry on plans for housing fabrication. Larry should be starting in a couple weeks.
- Overhead
- Out of Office
 - Vacation last week in Aug for memorial and family reunion in Colorado. 25 Aug to 3 Sep.

Week 33

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
- 902004 - Planktivore
- Overhead
- Out of Office
 - Vacation Aug 19
 - Vacation last week in Aug for memorial and family reunion. 25 Aug to 3 Sep.

Week 32

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
 - Assembled development Wago stack. Thanks to Dale for exchanging some of the wago modules that were incorrectly purchased
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
 - Tried Jira and Backlog, both nice bug trackers, but not a fit (yet) for the team. Accepting bugs into a shared google doc, by email and slack. The 'filing of a bug' is more important than the bug tracking system.
 - Implemented features from review on 30 Jun and have completed all the bug fixes
 - Testing, testing, testing. MpHOx, MFET and nanoFET.
 - Released pHFET-SOS v3.8.9 for lab testing on 5 Aug, planning final release Aug 19. Sixteen boards have been programmed
 - First proto of Instrument Simulator for CTD (MicroCAT), Aanderaa 5860 and Aanderaa Optode.
 - Handed off QA box and cable kit to Joseph. James is trained and can update firmware and checkout boards also.
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
 - James is using the QA box to program mphox boards for nsFOCE. Providing support.
- 902004 - Planktivore
 - Working on task list and priorities.
 - Maintenance and update of dev environment laptop
- Overhead
- Out of Office
 - Vacation Aug 19
 - Vacation last week in Aug for memorial and family reunion. 25 Aug to 3 Sep.

Week 31

- 300083 - DMO Support LRAUV

- 300070 - DMO Support Ventana
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
- 902004 - Planktivore
- Overhead
- Out of Office
 - Dental appointment delayed. Seeking treatment for TMJ.
 - Vacation last week in Aug for memorial and family reunion. Exact dates tbd (likely 27 Aug to 3 Sep).

Week 30

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
 - Xojo ground fault app working on Ventana in Bay 1 (drydock)
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
 - Wrapping up pHFETs test and release for MpHOx and MFET.
 - Worked with Irene Hu on Code Composer Studio setup, build, load and run.
 - Reviewed ADV c++ driver.
 - Connect and played with HyperOCR hyperspectral radiometer.
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
- 902004 - Planktivore
 - Met one on one with Paul R. then Jon E, then Duane E., to discuss planktivore tasks. Ramping up.
- Overhead
- Out of Office
 - Dental appointment delayed. Seeking treatment for TMJ.
 - Vacation last week in Aug for memorial and family reunion. Exact dates tbd (likely 27 Aug to 3 Sep).

Week 29

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
 - Testing xojo app on various windows 10 laptops, all Pro 10. Delivered a copy to DJ on his Microsoft Surface.
 - Logged a few issues that could be improved and reviewed with DJ.
 - Wago lesson from Dale that was very helpful in understanding modbus register assignment.
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
 - Working on bug list, testing, testing, testing. Getting ready to provide release candidate to the team.
 - ~100 minute periodic thermal cycle. Air conditioning is suspected, supporting Joseph in tests.
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
 - Supporting Dale and team with MpHOx
- 902004 - Planktivore
- Overhead
- Out of Office
 - Memorial service for Carmel High teen 21 Jul
 - Dental appointment July 29 in the morning
 - Vacation last week in Aug for memorial and family reunion. Exact dates tbd (likely 27 Aug to 3 Sep).

Week 28

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
 - Installed and tested binaries on loaner laptop for work with DJ.
- 901009 - CANON
 - Worked with Nate and Francisco on input for HiPP eDNA input to CANON proposal.
- 901805 - Coastal Biogeochemical Sensing
 - Irene Hu and Yui provided change requests and bug reports. In progress implementing.
 - Reviewed 901805 2022 proposal
 - James Mc is doing a great job on programming MPHOXs with QA station. Manufacturing request for cables is in progress.
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
 - nsFOCE team is working towards a dry test and a test tank test in the coming weeks. Met to discuss requirements and MpHOx firmware.
 - Worked with Dale to provide support, provided a draft of user's guide.
- 902004 - Planktivore
 - Wrote Planktivore proposal, reviewed, submitted.
- Overhead
 - Phone interview with Keith Hammond of MAKE magazine on SharkCafe Cam, techfest and open source software and hardware.
- Out of Office
 - Vacation July 7,8,9,12,13 (Family assist). Flew back on the 13th, in office on 14th.
 - Dental appointment on July 15 (was 14)
 - Vacation last week in Aug for memorial and family reunion. Exact dates tbd

Week 27

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
- 902004 - Planktivore
- Overhead
- Out of Office
 - Second Moderna vaccine received on 4/30.
 - Vacation 14-18 Jun (5 days) Camping a night on USS Iowa, then Catalina Emerald Bay with Scouts. Vacation extended 6/21, 6/22 to assist family in Pleasanton.
 - Vacation July 7,8,9
 - Dental appointment on July 14

Week 26

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
 - Full press to come up to speed and fix issues affecting Xojo for DeepSea Wago Ground Fault app. Very much appreciate the support from Rich. Lots of progress on coming up to speed and diagnosing.
 - Windows 10 Home causes modbus_connect fail.
 - Windows hosted Xojo build, debug and deploy

- Libmodbus dll build for 64bit. Progress made, but not complete as the blocking issue was solved with Win 10 Pro. 64bit is on the todo list, tho Dale indicates he is building 32bit labview with the 32bit dll.
- Debugging variables set thru JSON. Very cool JSON wago representation, but hardly used by this app.
- In progress writing a simple test app that toggles the same muxes and reads the analog. This will be a fallback until I get the mux sequencing straightened out.,
- Summary: Handoff from Rich complete. Thom to work with DJ moving forward. Thanks again to Rich for all you have done in these decades.
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
- 902004 - Planktivore
 - Behind...
- Overhead
- Out of Office
 - Second Moderna vaccine received on 4/30.
 - Vacation 14-18 Jun (5 days) Camping a night on USS Iowa, then Catalina Emerald Bay with Scouts. Vacation extended 6/21, 6/22 to assist family in Pleasanton.
 - Vacation July 7,8,9
 - Dental appointment on July 14

Week 25

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
 - Slides for nanoFET status, updates for 2022 ideas doc
 - Working on nanoFET, MFET and MPHOX software dev.
 - Bug tracker setup, Jira and Backlog eval. Jira is a bit more complex, but will go with the standard MBARI tool.
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
- 902004 - Planktivore
- Overhead
- Out of Office
 - Second Moderna vaccine received on 4/30.
 - Vacation 14-18 Jun (5 days) Camping a night on USS Iowa, then Catalina Emerald Bay with Scouts. Vacation extended 6/21, 6/22 to assist family in Pleasanton.
 - Dental appointment on July 14

Week 24

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
- 902004 - Planktivore

- Overhead
- Out of Office
 - Second Moderna vaccine received on 4/30.
 - Vacation 14-18 Jun (5 days) Camping a night on USS Iowa, then Catalina Emerald Bay with Scouts
 - Dental appointment on June 23

Week 23

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
 - Getting Xojo app up and running, familiarizing.
- 901009 - CANON
 - Truelove-M eDNA box was highlighted in DOEST.
- 901805 - Coastal Biogeochemical Sensing
 - User testing. Found a bug with fatfs.
 - Working on PWM for solenoid valve and pump soft start
 - Released both MFET and MpHOX code for lab use / testing.
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
- 902004 - Planktivore
 - Project management, working labor and budget for team meeting.
- Overhead
 - Attended DOEST
 - Tatjana Ellis released her podcast interview of me.. <https://anchor.fm/csinmarineresearch>
- Out of Office
 - Second Moderna vaccine received on 4/30.
 - Vacation 14-18 Jun (5 days) Camping a night on USS Iowa, then Catalina Emerald Bay with Scouts
 - Dental appointment on June 23

Week 22

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
 - Testing on MFET and MpHOx is complete.
 - Implemented improvements to QA routine, with the notion of having outside manufacturing run the QA routine or EE Tech team. It takes about one minute per board for this release.
 - Released v3.8.1 for MFET and MpHOx to the Carbon team for lab testing.
 - Working on 2022 proposal inputs
 - Paul Coenen is working on the QA workstation test jig. We've got 40 MpHOx and 20 MFETs to process. James and Joseph are checked out on the QA setup. I owe Joseph a follow up as our session was cut short due to trip to dentist.
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
 - Updated Dale Graves' MpHOx, explained data organization differences. Dale gave great feedback on M2M protocol improvements.
- 902004 - Planktivore
 - Project proposal tasks and estimates.
 - Started setting up RAID on DeepRip. Not done yet. Linux is next and will try zfs.
 - Got estimates from Larry Bird for Planktivore Housng. Work start end of June and three to four weeks of labor.

- Overhead
- Out of Office
 - Second Moderna vaccine received on 4/30.
 - Vacation 4 Jun (1 days). Camping. Shortened from 5 days to 1 day due to wife's job commitments.
 - Vacation 14-18 Jun (5 days) Camping a night on USS Iowa, then Catalina Emerald Bay with Scouts

Week 21

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
 - Touched bases with DJ.
 - Startup curve on Xojo.
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
 - Paul C did a great job packaging and mounting boards and test setup into the 'dev box'. In progress is a similar, the 'QA box'. This will be a big help going thru the run of 40 MpHOx boards and latest batch of MFET. Automated board checkout routine is in the latest firmware release with a consolidated (and stored) QA report for provenance tracking.
 - Testing of build variants for MFET and MpHOx was more efficient with the 'dev box', bugs found and fixed.
 - Serial instrument simulator parts are all in. Request EE-Tech to build three for Aanderaa Optode, Aanderaa Conductivity and Seabird SBE37 MicroCat simulators.
 - Firmware for MFET and MpHOX dev / testing is at 'release candidate' state.
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
- 902004 - Planktivore
 - Processed action items from kickoff meeting.
 - Working on setup for remote office.
- Overhead
- Out of Office
 - Second Moderna vaccine received on 4/30.
 - Vacation 3 - 4 Jun (2 days). Camping at Refugio. Shortened from 5 days to 2 days
 - Vacation 14-18 Jun (5 days) Camping a night on USS Iowa, then Catalina Emerald Bay with Scouts

Week 20

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
 - Firmware release for testing by Carbon lab.
 - Review of data grouping proposal. Grouping and support of legacy users.
 - Temperature conversion: worked on three variable Steinhart-Hart alg and trying to understand the equation used by Scripps (four variable). Researching and testing. Converted to single to double precision. Three equations, three unknowns to generate S-H coefficients if we were to encode the calibration of the thermistor.
 - Working to improve QA procedure. James M. did a walkthrough for Yui. Working to further automate to make James job easier with all the same traceability.
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
- 902004 - Planktivore
 - Status/Kickoff meeting with Steve Haddock, Francisco Chavez, Henry Ruhl, Paul Roberts

- Follow-up meeting with Paul to discuss technical direction.
- Working on 2022 estimate for Henry
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- Overhead
- Out of Office
 - Second Moderna vaccine received on 4/30.
 - Vacation 6-11 May (4 days). Complete: flew to Missoula from Monterey, drove back solo. Week of May 17 onsite access with testing.
 - Vacation 31 May - 4 Jun (5 days). Camping in SLO county.
 - Vacation 14-18 Jun (5 days) Camping a night on USS Iowa, then Catalina Emerald Bay with Scouts

Week 19

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
 - Updating config options and sampling per review comments.
 - Starting to test the MFET build
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
- 902004 - Planktivore
- Overhead
- Out of Office
 - Second Moderna vaccine received on 4/30.
 - Vacation 6-11 May (4 days). Complete: flew to Missoula from Monterey, drove back solo. Week of May 17 onsite access with testing.
 - Vacation 31 May - 4 Jun (5 days). Camping in SLO county.
 - Vacation 14-18 Jun (5 days) Camping a night on USS Iowa, then Catalina Emerald Bay with Scouts

Week 18

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
 - Working with Paul C to wrap up eDNA box packaging.
- 901805 - Coastal Biogeochemical Sensing
 - Big push on MpHOx software is winding down. Review with Yui on Wed resulted in a short list of changes.
 - Ordered parts to make instrument simulators for SBE MicroCat, Aanderaa Optode and conductivity.
 - Working with Paul C to get an esd box with dev boards mounted. Will replicate once we get the first one 'right'.
 - QA procedure updated. Requested the remaining MpHOx boards be tested next week. First batch resulted in 3 fails. Inventoried the boxes.
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
 - Optode and Conductivity drivers are written and tested.
 - Delivered an MpHOx setup to Dale Graves, basic operation explained.
 - Delivered an MpHOx setup to Chris Lovera, basic operation explained. pH measurements successfully made with a pencil durafet2 and working cable.
 - Sent status to the group.
- 902004 - Planktivore

- Working on board bullets. Getting ready for focused execution.
- Overhead
- Out of Office
 - Second Moderna vaccine received on 4/30.
 - Vacation 6,7,10,11 May (4 days) Updated to fix a typo (Apr) and add a day 5/11. Flying to Missoula and driving solo back to CA.
 - Vacation 31 May - 4 Jun (5 days). Camping in SLO county.
 - Vacation 14-18 Jun (5 days) Camping a night on USS Iowa, then Catalina Emerald Bay with Scouts

Week 17

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
 - Pushing to release the latest software. Testing and review is creating todo items, but the list is converging.
 - Thanks to James M. for helping with easy bias battery measurement probe. Gave Scott a setup and he found an assembly error on the 'bad' MCAP board
 - Wrote QA firmware and put together a setup for programming and testing the 40 mphox+mcap boards.
- 902000 - Multi-Spectral StealthCam
 - Bootloader is flashed on PWM lighting boards.
- 901713 - Nearshore FOCE
 - Working to get Chris setup to measure pH. Found and fixed problems with power supply, usb to serial, pH cable, durafet2 sensors and MpHOx+MCAP assembly error.
- 902004 - Planktivore
 - Getting parts from Paul for strobe testing.
- Overhead
- Out of Office
 - Second Moderna vaccine scheduled 4/30.
 - Vacation 6,7,10,11 May (4 days) Updated to fix a typo (Apr) and add a day 5/11. Flying to Missoula and driving solo back to CA.
 - Vacation 31 May - 4 Jun (5 days). Camping in SLO county.
 - Vacation 14-18 Jun (5 days) Camping a night on USS Iowa, then Catalina Emerald Bay with Scouts

Week 16

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
 - Majority of time working on new release for MpHOx, MFET. Getting close, reviewed progress with Yui.
 - Spent time measuring the analog sims (Jensenian V2) and doing variability analysis on 5 MCAP boards for a qa test procedure. Found 2 of the 5 MCAPS have problems. Test results and procedure handed to Scott J for hardware debug.
- 902000 - Multi-Spectral StealthCam
 - Working with James M to get cables built, bootloader flashed, etc. James has burned the bootloader thru the tagConnect using the cable adapter with the new atmel-ice.
- 901713 - Nearshore FOCE
 - Working to get a known good cable, durafet2 and mphox+mcap.

- Testing pre-release with nsFOCE a Durafet2. Found a wiring issues. Found I had a bad Durafet. Worked it with Yui to verify, we found other bad sensors. Preparing a test setup for the nsFOCE team to QA cables, sensors and MpHOx boards.
- 902004 - Planktivore
- Overhead
- Out of Office
 - Vacation 9 Mar 2021 (1 day)
 - Vacation 6,7,10 Apr (3 days)
 - Vacation 31 May - 4 Jun (5 days)
 - Vacation 14-18 Jun (5 days)

Week 15

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
- 902004 - Planktivore
- Overhead
- Out of Office
 - Vacation 9 Mar 2021 (1 day)
 - Vacation 6,7,10 Apr (3 days)
 - Vacation 31 May - 4 Jun (5 days)
 - Vacation 14-18 Jun (5 days)

Week 14

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
 - Primary effort this week is on completing enhancement list for MpHOx/MFET, finding and fixing a few bugs by inspection, refactoring, testing, testing.
 - Found an issue with counter electrode current scaling - slack discussions with Yui and Scott
 - Setting up DAg board with BME280 and FRAM/Flash as nanoFET proxy
- 902000 - Multi-Spectral StealthCam
 - Handed the Atmel ICE to tagConnect to PWM board cable assignment to James McClure.
- 901713 - Nearshore FOCE
 - Supporting nsFOCE team, prep for durafet pressure test
 - MpHOx firmware release is needed by June
- 902004 - Planktivore
 - Project prep to begin work after commits on other projects, discussions with Henry, Paul
 - Requested extension
- Overhead
- Out of Office
 - Vacation 9 Mar 2021 (1 day)
 - Vacation 6,7,10 Apr (3 days)
 - Vacation 31 May - 4 Jun (5 days)
 - Vacation 14-18 Jun (5 days)

Week 13

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
 - Working on nanoFET board checkout. Met with Scott on differences between MCAP and nanoFET analog interface, implemented the nanoFET specific changes.
 - 32KHz clock is now working which enabled the rtc and hibernate module, working to figure out sleep issues and rtc problem
 - Implementing new features and enhancements on MpHOx and MFET.
- 902000 - Multi-Spectral StealthCam
 - Sent details for cable adapter for atmel ice to tagconnect on pwm board.
- 901713 - Nearshore FOCE
 - Finished refactoring the uart code for support of conductivity and optode on same device while maintaining existing support for ctd, etc.
- 902004 - Planktivore
 - Gathering status where possible. Not able to get status on housing development.
 - Putting together an update for stakeholders.
 - Met with Jose on DeepRip status. He has done a wonderful job on a challenging AMD based build.
- Overhead
- Out of Office
 - Approval granted for access as needed weekly on Tues, Wed, Thurs. Glad to be back.

Week 12

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
 - Working with Scott on nanoFET. Devised a procedure for working remote with a single nanoFET board.
 - Setting up a DAG board with BME280 and FRAM/chip flash as a development proxy for the nanoFET.
 - Working on Yui's feature list with MpHOx as target board. New mikroProg ICDI fixed the stability problems with CCS wonderfully. MikroElectronica support is responsive and I sent the files for reproducing hex programming issues with their Arm Suite tool.
- 902000 - Multi-Spectral StealthCam
 - Received connectors/adapters and new Atmel ICE for burning bootloader on PWM board.
- 901713 - Nearshore FOCE
 - Implementing drivers and protocol for Optode and Conductivity on single MpHOx board
 - Attended weekly meeting, requested high level schedule to help work priorities
- 902004 - Planktivore
 - Small progress on updated project plan. Work will start in earnest after hitting some milestones on other projects. I'm about 6 weeks behind what was originally planned for focused execution.
- Overhead
 - Windows update caused several hours of debug on a dual boot development machine. Painful timing.
- Out of Office
 - 14 day quarantine ends on Mar 29.

Week 11

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana

- 901009 - CANON
 - AWS Server setup April 2020 for remote internship, HiPP eval and eDNA processing has been a source of trickling charges. The account is now closed and the trickle should stop after 90 days, I hope. I have respect for the role of DevOps.
- 901805 - Coastal Biogeochemical Sensing
 - Started on feature / bug list with MpHOx as dev hardware. Target connection issues related to supporting multiple chips in the same codebase and/or moving to CCS v10. Resolved by installing CCS v7 on another pc which reconfigured the mikroprog jtag emulator.
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
- 902004 - Planktivore
 - Thanks to Jose and James for getting the 220v power supply installed in DeepRip as this solves the power supply to motherboard software problem. Grateful for Paul M providing advice. Moving from 120v to 220v comes with a set of challenges working on options for the UPS next.
 - Updating Planktivore project plan to prep for update to stakeholders.
- Overhead
- Out of Office
 - Arrived home early morning Mar 14 from my trip to Colorado. 14 day quarantine ends on Mar 29.

Week 10

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
- 902004 - Planktivore
- Overhead
 - Reviewing intern applications
- Out of Office
 - Driving back from Colorado starting Mar. 11, expected return on Mar 13.

Week 9

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
 - nanoFET board bringup, workinprogress, going reasonably well but need the 32Khz clock osc operational.
 - A/D converter is working, menu items for discrete channel testing are functioning. Did not have the Jensenian board, so not sure of noise/accuracy. Sending board to Scott to enable his analog checkout.
 - Ordered missing FRAM, arrived (late), just as I mailed the nanoFET back to MBARI for Scott Jensen.
 - MpHOx boards have been transferred to Scott Jensen. He is onsite and can coordinate with Joseph, Yui and Chad on board inventory and checkout.
 - New batch of MFETs are in progress. Met to discuss board QA procedure.
- 902000 - Multi-Spectral StealthCam
 - Ordered a replacement JTAG emulator and connectors to resolve the bootloader burn problem.
- 901713 - Nearshore FOCE
- 902004 - Planktivore

- Worked on kickoff materials and updating the project plan. Online meetings one on one with Duane Edgington, Paul Roberts and Larry Bird.
- Messaged via Slack the delay due to family emergency.
- Overhead
- Out of Office
 - Allergy symptoms improving. Doctors note is not forthcoming after 8 days waiting.
 - Family emergency in Colorado, leaving 3 Mar driving. Not sure on return, setting expectations as 10 to 14 days followed by mandatory 14 day quarantine.

Week 8

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
 - nanoFET board bringup.
- 902000 - Multi-Spectral StealthCam
 - Simplified the wiring with direct wiring for JTAG to eliminate some of the variables, it's looking like it's the Atmel ICE or it's cable. Also tried wiring to a Feather M0 type board, could not burn bootloader either.
 - Atmel ICE ordered.
- 901713 - Nearshore FOCE
- 902004 - Planktivore
- Overhead
- Out of Office
 - Allergy symptoms preventing access to MBARI, Allergy doctor on Friday
 - Vacation plans TBD, after getting projects underway.

Week 7

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
- 902000 - Multi-Spectral StealthCam
 - Debugging cable/atmel studio/jtag connection for burning bootloader.
- 901713 - Nearshore FOCE
 - Attended meeting.
 - Working on firmware for Conductivity and O2 instrument
- 902004 - Planktivore
- Overhead
 - Attended Teri Lampoudi seminar
 - Forwarded Principal Eng. job description to a candidate. Forwarded to NTNU as well.
- Out of Office
 - Out sick 4 Feb, back working remote Feb 16. Covid tests negative.
 - Vacation plans TBD, after getting projects underway.

Week 6

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing

- Working on nanoFET
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
 - Attended meeting
 - Working on Cond/O2 support
 - Support for Chad
- 902004 - Planktivore
- Overhead
 -
- Out of Office
 - Out sick 4 Feb to 10 Feb.
 - Vacation plans TBD, after getting projects underway.

Week 5

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
 - Installed Xojo, rebuilt VentanaGF app, ran it on Wago stack. Studied the code, met with Rich, etc.
 - Meeting with DJ to go over the app and see how the GF app runs on his laptop. I can now see the issue, gpio lights not matching mux config and relay clicks not regular as would be expected. I'm on it.
- 901009 - CANON
 - The eDNA sequencer shipbox
- 901805 - Coastal Biogeochemical Sensing
 - nanoFET board bringup.
 - Working on new features
 - MpHOx board checkout (4 fails).
- 902000 - Multi-Spectral StealthCam
 - Discussion on status with Chad, aiming for mid-Feb, after working thru other commits.
- 901713 - Nearshore FOCE
 - Debugging serial comms with Aanderaa, turns out it was a setting in Teraterm. Sent info on symptoms and fix to Aanderaa, good timing as a new manual is in the works.
 - nsFOCE team has 14 MpHOx boards, 13 have been thru basic board test, the other is in a housing for fit.
 - Working to support both Conductivity and Optode on the same MpHOx
- 902004 - Planktivore
 - DeepRip mobo was swapped, did not fix the 'shutdown after 60 minutes' problem. We are now suspecting it's the power supply and thermal protection software. It may not be running yet, but the build quality is fantastic, well done Jose.
- Overhead
 - Tatjana Ellis, former intern, is conducting podcast style interviews for engineers and scientists.
- Out of Office
 - Vacation plans TBD, after getting projects underway.

Week 4

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
 - Working on nanoFET board bringup, pinmux and registers are init'd, working on adapting peripheral drivers as needed. Seeing lots of need to refactor the codebase, will need to figure out when to fork off a functional version for some much need restructuring.

- MpHOx / MCap board test. Three fails will be brought into MBARI for Scott.
- Adding PWM driver for solenoid control
- 902000 - Multi-Spectral StealthCam
- 901713 - Nearshore FOCE
 - Programmed 13 MpHOx boards with pre-release firmware, tested, and sent via UPS to MBARI
 - Working on Aanderaa Conductivity sensor config, finally figured out the blocking issue with PC connection (terminal emulator setting).
 - Attended meeting, found out about 2nd serial port connection requirement. Working on Aanderaa drivers.
- 902004 - Planktivore
 - Started drafting kickoff slides
 - Board bullets
 - DeepRip build is still working thru component problems. Motherboard is being RMA'd. Jose is doing a fantastic job.
- Overhead
 - Review
- Out of Office
 - Cancelled my vacation plans for last week.

Week 3

- 300083 - DMO Support LRAUV
- 300070 - DMO Support Ventana
 - Installed Xojo
 - Cloned Rich's modbus apps
 - Coming up to speed
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
 - Priority is on nanoFET board bringup, in progress, main focus.
 - Toolchain qualification and update to CCS v10 is complete, a few bumps, but not bad.
- 902000 - Multi-Spectral StealthCam
- nsFOCE
 - Board checkout of 13 MpHOx
- 902004 - Planktivore
 - Working with Jose (remote) on DeepRip build. Sorting power supply prob.
- Overhead
 - Engineering Meeting
 - Review prep
- Out of Office

Week 2

- 300083 - DMO Support LRAUV
- 901009 - CANON
- 901805 - Coastal Biogeochemical Sensing
- 902000 - Multi-Spectral StealthCam
- 902004 - Planktivore
- Overhead
- Out of Office

Week 1

- 300083 - DMO Support LRAUV

- 901009 - CANON
 - We are shutting down our AWS instance for eDNA workflow development / working with external collaborators and interns. Collecting lessons learned and costs.
- 901805 - Coastal Biogeochemical Sensing
 - Meeting with Yui and Joseph to discuss software task list, board support and priorities
 - Sorted out the problem with CCSv10 IDE workspace import bug with dependent libraries. Migrating codebase to CCS v10.
 - 901713 - Nearshore FOCE: setting up mphox and conductivity sensor with cable borrowed from Crissy.
- 902000 - Multi-Spectral StealthCam
 - Unpacked the box and worked for a bit troubleshooting the jtag connection for flashing the bootloader.
- 902004 - Planktivore
 - Organizing
 - Reviewed 2020 charges and found errors, working it.
- Overhead
 - DMO Support Ventana. The missing wago stack box was found on 5 Jan 2021 concluding a search that started Dec. 3.
- Out of Office