# Doug Pargett Sorted By Project

## 300078 - DMO Support- AUV

- Discussed with Hans Thomas scope and ideas of new AUV lift structure. (Week 51)

## 901205 - ESP SURF Center

- Made a disassembly tool to take apart the G3 ESP A domes, and it works! Saving that thing. (Week 5)
- The 20-bar pressure sensor for MV-3 is made and ready to install. MV-2's has been replaced with a 20-bar. (Week 5)
- Need to find the 35bar pressure sensors for MV-3's leak detection. (Week 5)
- Plugged the ambient pressure ports on MV-2 and MV-3 parts with Ti Pins and EPDM seals. (Week 5)
- Organized G3 circuit boards in the lab into bins. (Week 5)
- Starting cleaning up prior to external review. 🧹 (Week 5)
- MV-2 now needs starting up prior to installing the oil dome and high pressure testing. (Week 6)
- MV-3 A-dome assembly is almost complete. Center plate, pump, pump pressure sensor, penetrators and bulkhead valve assembly all installed.
  (Week 6)
- Still haven't found everything I'm looking for. 35 bar pressure sensor (more ordered, but long lead time) (Week 6)
- Still cleaning lab and organizing tools and parts. Will get more help with this next week. (Week 6)
- Built the G3 instruments MV-2 and MV-3 as far as is reasonable until we can do some system testing. (Week 7)
- Scott Jensen looked over MV-2. On start-up, it seems to be mostly ok, but running 2 year old software and firmware. MV-2 woke up from a 2-year nap and now has left and right mixed up. (Week 7)
- (Week 7)
- MV-3 is about 90% built. Some long lead parts are coming in April. It got a yellow card from the referee and will be sitting on the bench for a bit. (Week 7)
- (Week 7)
- Continued major clean-up of the Tech Lab with Dack. (Week 7)
- Helping McLane rebuild 2G ESPs. (Week 9)
- Met with Function on cartridge redesign. (Week 11)
- Have a list of items MBARI needs to get ready by March 20. This is my top priority. (Week 11)
- Attended online meeting with Function on the cartridge redesign. (Week 13)
- Designed the modifications needed to make our bench machines compatible with the new cartridge for testing. One part needs to be 3d printed, two others need light machining. (Week 13)
- Getting part and mods ready to turn a bench G3 into a test rig for Function. (Week 15)
- Parts are ordered, I will schedule w/ Norm and Greg for an onsite mod-day once they come in. (Week 15)
- Testing some thermal simulations of the Function alpha cartridge model. (Week 15)
- Modeling more of the printed housing for the Saildrone platform (Week 15)
- This last week (or was it the last two weeks?) I rebuilt the Stumpy bench ESP to operate the new cartridges being designed by Function. Brought it home, helped Brent get the remote network going, and has since been picked up by Function. Thanks to Greg and all for helping make this happen. (Week 17)
- Function got the new cartridge parts today and can soon start testing them. Note, this is the alpha test article. (Week 17)
- I have run some thermal simulations of the new Function cartridges (mostly for SW practice and a bit for predicting where we might have problems heating these.) So far, the features we thought might be problematic, will be problematic, but not as bad as we thought. I think they will be easily solved. (Week 17)

- Completing the “FlowerPot” housing design. (Week 20)
- Attended usual zoom meetings (Week 22)
- Making minor tweeks to the solid models of the FlowerPot dome caps. (Week 22)
- Reviewing the new cartridge testing and development. (Week 22)
- Putting together ideas for the proposal cycle (upgrading G3 ESPs, etc) (Week 22)
- Working on the Function Cartridge reviews (Week 23)
- Starting to design the modifications necessary to the Bench instruments and the 60 cartridge instruments. (Week 23)
- Worked on some cartridge test and instrument development plans for the coming year. (Week 23)
- I have been talking with an autonomous surface vehicle company to see if the FlowerPot ESP housing (currently in design) would fit their vehicle. A few simple changes now, and it will fit fine. (Week 24)
- I’ve started designing new cartridge port fittings and torovid valve components that can be fit on the portable G3 ESPs to test the Alpha2 cartridge from function. (Week 24)
- We found a ground fault in MV1 during the test deployment. Scott Jensen found it to be associated with the pump pressure sensor. I inspected and found the oil to be fouled. (At some point in time there was a water leak into the oil.) The penetrator contacts detected this as a ground fault. As it’s open, we decided to make the jump and replace the pressure sensor to a 20bar one at this time. It’s just waiting for the electrical surgeon to do the transplant. (Week 25)
- I’m getting direct port adapters from the shop so we can test the next version of the Function cartridge, but these do not have toroid valves. (Week 25)
- I’ve started a major redesign of the 3G ESP toroid valve array to accommodate the new cartridge port spacing and angled ports. Since just elongating the current TV valve would interfere with the electronics boards on the cartridge, the TV valve hard stops, throws, and all the flow paths need to be redesigned as well. (Week 25)
- Replaced the pump and oil dome on MV1. It’s ready for testing. (Week 26)
- Redesigning the TV array for the new cartridges. (Week 26)
- Flower pot housing needs mods before 3d Printing. Some more issues found with our in-house printer. (Week 26)
- Repaired the MV1 instrument (Week 28)
- New parts to test the next Function Cartridge testing… (Week 28)
- Flowerpot housing: Thread insert test article being printed. (Week 28)
- FlowerPot housing: The test article with brass inserts didn’t go well. (Threads don’t match nor are they uniform.) Switching to another style, stainless steel insert. (Week 29)
- Modifying the FlowerPot housing dome for the stainless inserts. (adding true threads to the model) for 3d printing. (Week 29)
- Replaced 3 toroid valves in the Honu instrument. (Week 33)
- Found a major issue with the new pressure sensors that is due to a manufacturing change. Working on a fix, but trying to get mfg’s to talk to us about the options. (Week 33)
- Requested parts from the machine shop. (Week 33)
- Zoom Meetings (Week 33)
- Working out solution for the pressure sensor problems. (Week 34)
- Designed new stage and TV actuator for bench ESP. Made drawings and solid files for 3d printing. (Week 34)
- We’re trying to rebuild the MV-1 instrument for the coming canon cruise. MV-1 had many issues with pressure sensors in the last deployment, and we are digging deeper and deeper into the instrument. We will be testing a drill modified pressure sensor tomorrow. (Week 35)
- The MV1 instrument has been wrestled around a few times, but now has a drilled pressure sensor and a rebuilt pump. Initial high pressure tests show the drilled sensor is compensating to ambient. (Week 36)
- MV1 is showing some cartridge seal leaks and those will need to be dealt with prior to deployment. (Week 36)
- I rebuilt all the cartridge seals on the toroid ring of the MV-1 G3ESP. (Week 37)
- Ordering parts from the shop for MV2, MV3, and Franken-Tower builds. (Week 38)
- The MV-1 instrument had cartridge issues after re-build, but looks to be an old part problem. I’ve added shim material to better line up the cartridges. Testing looks good so far. (Week 39)
- Parts are coming in to rebuild 2 of the G3 ESP pumps. (Week 39)

- Starting conversion of the Franken-Tower bench instrument to work with the Function cartridges at high pressure. The old damaged MV-1 LRAUV dome will be used for this. (Week 39)
- Additional progress on upgrading the Tower portable to use the function cartridges. The new cartridge deck is built and handoff +valves setup. Not tested yet. No pump or pressure dome yet. (Week 40)
- Cleaned and rebuilt 2 G3 ESP pumps with new 3d printed bodies and new bearings. Needs tubing and flow testing, + alignment checks still. These are slated for MV2 and MV3. (Week 40)
- (Week 40)
- Made some quick repair and troubleshooting of the MV1 instrument for the coming deployment. (Week 41)
- Built up more bleach-backwash check valve assemblies. (Week 41)
- Disassembled the previous MV1 dome and cleaned up the parts. There was some sediment in the oil chamber. (This was originally on MV3, but swapped after MV1 got hit.) Some components are needed for the FrankenTower™ system. Additional parts from the shop are also needed to rebuild. This dome will be needed if we want to move Koa back to LRAUV operations. (Week 41)
- Making the revisions to the Solidworks models of the Flowerpot housing parts to match what was needed/missed in the first build. (Week 41)
- We recanned the Koa instrument a few extra times as we inspected and fixed stuff. (Week 43)
- I built up some over-instrument shelving and surge chamber to get Koa set-up for a possible deployment on the WF next week. (Week 43)
- I've ordered several parts for the shop that are needed for MV2, MV3 and FrankenTower. (Week 43)
- Helped get the Koa instrument set up for going out on the WF. (Week 44)
- Started rebuilding the damaged LRAUV dome for use with the FrankenTower instrument. (Week 44)
- Ordered lots of ESP parts from the shop. (Week 44)
- Modifying frame components of the bulkhead valve assembly to be 3d printed rather than several machined components. (Week 44)
- The G3 ESP on the WF seems to have performed well. Is there interest in having an ESP available on the WF more often? (Week 45)
- Created solid models to 3d print some G3 ESP bulkhead valve components rather than assemble from several machined metal parts. (Lighter and can print-as-needed rather than stockpile lots of spare parts.) (Week 45)
- FrankenTower, a high pressure capable bench ESP, is mostly complete. Some electrical upgrades and calibration are needed prior to pump installation and testing. (Week 46)
- Zoom meeting to start phase 3 of cartridge redesign. (Week 46)
- Added a holster for the bleach bottle to the front of the KOA-FLowerPot housing. (Week 47)
- (Week 47)
- Tested shims between cartridge for new Function Cartridge design. (Week 47)
- Adjusted thermal FEA models of the Function cartridges. (Week 47)
- (Week 47)
- Additional thermal FEA of the current cartridges to compare the new concept to. (Week 48)
- (Week 48)
- Cleaned and organized about half of my ESP workspace and tools. (Week 48)
- Meetings, phone calls, answering questions. (Week 49)
- Solidworks, setting up models to FEA some ideas that might better manage heating of the new cartridges. (Week 49)
- More thermal FEA on new cartridges to test a couple possible design changes. FEA results predict the changes probably won't help much. (Week 50)
- ESP Meetings and remote work to support shimmed cartridge test. (Week 50)
- Started a new Solidworks model of Tower to include the changes and high pressure test pump and dome. Designing new support to have better roll and tilt testing capability. (Week 50)
- Reviewed the Function designs for the Alpha 2.2 cartridge, focusing on the seals at first. (Week 51)
- Installed thermocouples into an old cartridge body to help map sample temperatures. (Week 51)
- (Week 51)
- (Week 51)

- Installed pressure sensors and amp boards into ESP Tower, mostly so they don't get lost. Tower will need to be disassembled when we get the new stage components. (Week 51)

## 901800.98 - Bioacoustic Payload

- Waiting on parts from shop, target is Feb 10. (Week 5)
- 5-axis mill is awesome! 😍 Thanks for getting it. (Week 5)
- (Week 5)
- (Week 5)
- The pressure domes being made at Scripps have arrived, and they look great. (Week 6)
- Test fit with the (un-anodized) caps and looks good so far. (Week 6)
- (Week 6)
- Built up the first gimbal transducer assembly, and it…. Rocks! (Week 7)
- (Week 7)
- Pressure housing parts are here. (Week 9)
- Building up test gimbal assembly. (Week 9)
- New main structure piece has been printed. Still some issues. Suggest using the ABS one for testing. (Week 11)
- Circuit board mount milled form G10. Ready for build. (Week 11)

## DQ1904 - NOPP Saildrone

- Had a meeting at Saildrone on Friday. Detailed out functional requirements and MBARI action items. Design will merge well with the dock/river-side G3 ESP housing called "FlowerPot" (Week 11)
- Started design of housing for the Saildrone 3G ESP. (Week 13)
- I'm getting preliminary quotes for 3d printing "FlowerPot" domes. (Week 20)
- Adjusting the design of the 3d printed "FlowerPot" dome to need less machining work after printing. (Week 23)
- Prepared the 3d printed FlowerPot housing for assembly. (Week 33)
- Rebuilt a G3 pump for FlowerPot housing (Week 33)
- Zoom Meeting (Week 33)
- Building the FlowerPot housing and pump head. Moving the Koa ESP instrument to mount in it. (Week 34)
- This last week I have been building, rebuilding, and rebuilding again the G3 ESP in the acrylic housing for saildrone. Issues with the pressure sensors may be fixed now. (testing tomorrow) (Week 35)
- After a couple more rebuilds and part changes, the Koa instrument is fully setup with the new acrylic dome housing. A few tweaks to wiring and circuits are being looked at. (Week 36)
- (Week 36)
- Test assembled the FlowerPot housing with the Koa instrument. (Week 37)
- (Week 37)
- Requested a part from the shop to lock the subconn connectors in position. (Week 37)
- ESP Koa is in final testing before going to Saildrone. Saildrone is not ready for the ESP. (Week 38)
- Koa has a check valve system on the output so we can test a mild bleach/flush backwash process. (Week 39)
- The Flowerpot housing has new, grommeted assembly straps and lift handles. (Week 39)
- Built up a check valve system for Koa to use weak bleach as a back flush fluid. This should help keep the instrument cleaner between samples. (Week 40)
- Standing by to meet with Saildrone and see how the ESP backwash cleaning protocol will work with them. (Week 41)
- I took the Koa instrument up to Saildrone to test the comms and power. Eventually it got sorted out, sort of. Saildrone's schedule is very optimistic, but they are motivated. They also would like to do the initial on-water tests without the ESP on board. (Week 43)
- A few phone calls and emails with Saildrone about screen materials and fluid connections. (Week 50)

# DQ1925 - NOAA Ecohab

## Out of Office

- Leave days
- A few more leave hours
- A couple days of leave.
- A day of SL (leg injury, not illness). I should be back to the lab on my usual Thursday.
- A few days of Vacation/Holiday
- A few hours of Vacation

## Overhead

- Reviewing pressure codes to help out Gene. (Week 9)
- Ran some FEA for Gene M. and he's modifying his design to improve pressure. (Week 11)
- Have setup to run SW and FEA remotely if I need to stay home. (Week 11)
- Ran a few FEA models for Gene. (Week 13)
- A bit of LinkedIn training while it was raining. (Week 15)
- I finished up running simulations of Gene's pressure chamber, hopefully he's happy with it. (Week 17)
- Zoom Meeting (Week 33)
- A couple hours of school/education outreach about ocean technology. (Week 41)
- Ordering computer upgrades (thanks) (Week 45)
- Engineering meeting (Week 46)
- Setting up new computer, files, and remote desktop software. (Week 46)
- Setting up new computers, software and moving more files around. (Week 47)
- Training (Week 48)
- Solidworks license transfer headaches. Thanks to Hawkridge it's fixed now. (Week 49)
- Successfully passed the phishing email test… again. (Week 50)
- "Congratulations on identifitying a suspect message and submitting it for evaluation!" (Week 50)
- Spelling error? identifitying (Week 50)