

Engineering Weekly Report 3/18/2021 - 3/25/2021

Executive Council Notes

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Individual Activities

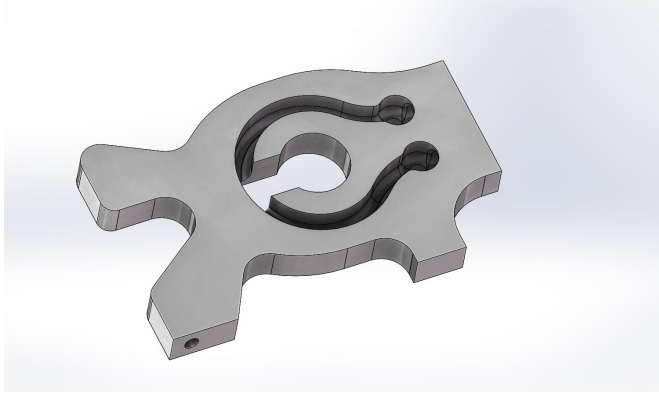
- Francois Cazenave
 - 902106 - Niobicon-Based AUV Docking Development
 - I have been testing the niobium dock prototype
 - I assembled the new load dump
- Mark Chaffey
- Danelle Cline
 - Out of Office
 - March 29-April 2nd. I will be off-the-grid for a good part of this.
- Duane Edgington
 - 901603 - Video TAG: Visualizing Ocean Change
 - Reading recent work from Facebook AI on unsupervised learning technique Barlow Twins
 - 902005 - VARS Annotation Assistance
 - Working on Sprint 2 tasks due March 24 2021.
 - Overhead
 - Quarterly checkup meeting.
 - Out of Office
 - Medical Appt Friday March 26
 - AWS Tech talks. Lightsail containers, EKS clusters, ECS copilot, MacOS on AWS, oh my...
 - Andrew Ng talk on MLOps
- Jon Erickson
 - 800139 - EyeRIS
 - Assembling the camera can
 - Overhead
 - Two days with Quest in the tank for the MARS node simulator. Never did find the ground fault.
- Kevin Gomes
 - Overhead
 - Main body of work has been getting ready for navproc and data probe deployment on Carson. We were set to do our first ROV deployment tomorrow (Thursday) but the dive was cancelled. That puts us in a bind to get any kind of test dive so we are looking to make the change over to the new navproc system on April 1 to make sure we have sufficient run time before Rich retires.
 - Holding quarterly meetings with my group members this week
 - Some AWS assistance
 - Out of Office
 - May 12-24: Vacation
 - June 21-25: Vacation
- Andy Hamilton
- Kent Headley
 - 901101 - Seafloor Mapping

- Checked in UDP multicast server and client feature for Terrain Relative Nav. This feature provides simple pub/sub TRN updates with subscriber list management or heartbeat schemes to detect broken/abandoned subscriber connections.
 - The client for TRN server was updated to expose the full TRN API; together with UDP multicast, this provides a two-part solution for integrators: use a UDP multicast subscriber for data and add a TRN client for applications that need to control the TRN engine or read status.
- Overhead
 - Strategic Roadmap meetings
 - Updated OS (and build tools) on main development machine
- Out of Office
 - Wed 3/17 - medical (a.m.)
 - Wed 3/24 - medical (p.m.)
 - Tue 5/25 - medical (late a. m.)
- Rich Henthorn
 - 600034 - Precision Control Technologies for ROVs and AUVs
 - Worked on TRN and OA issues with McEwen
 - Debugging the TRN application program for LRAUV
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Met with Andy and Ryan Coe to review the Current-Command app
 - 901618 - Pelagic-Benthic Coupling
 - Assisted with WG acommms at Sta.M
 - Out of Office
 - Vacation days Mar 22 - Apr 2 (this week!)
 - Email and phone connectivity
 - Mountain Daylight Time
- Brett Hobson
- Scott Jensen
- Brent Jones
- Chad Keczy
- Brian Kieft
 - 300082 - DMO Support - Wave Glider
 - Helping out with Tiny and Station M Rover deployment. Conditions are challenging for acommms at this time.
 - 708168 - DHS Y7
 - Supported engineering deployment in Buzzard's Bay. Preparing for first science deployment.
 - Debugging issues with i2c bus on new mobos. Pressure sensor is failing
 - 901009 - CANON
 - Met to discuss plans for the two April field campaigns
 - 901513 - Targeted Sampling by AUVs
 - Debugging an issue with mission refile calls in the isotherm sampling mission
 - 901618 - Pelagic-Benthic Coupling
 - See above Station M work
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Implementing docking arm component
 - Implementing HE thruster component
 - Fixed issue in RDI component
 - Overhead
 - Eng meeting
 - Out of Office
 - Apr 2-9 (vacation)

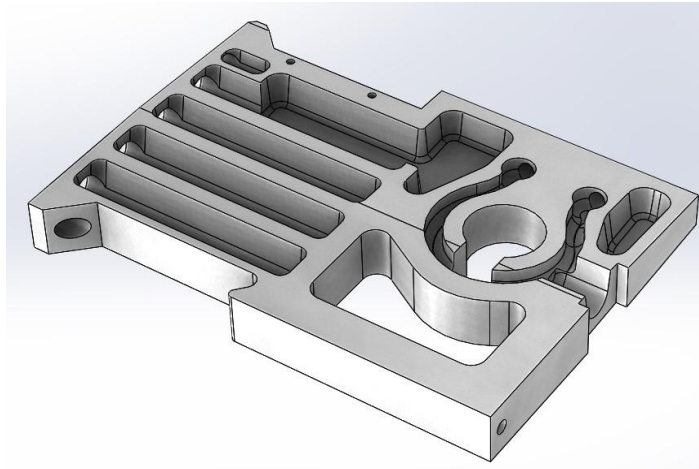
- Jul 1-9 (vacation)
 - Aug 5-6 (vacation)
- Denis Klimov
 - 300083 - DMO Support LRAUV
 - Working on battery pack degaussing report
 - 800139 - EyeRIS
 - Working on the setup for optical tuning of LED clusters: detector attachment base; and mounting of the cluster to the optical table. Also 1 EyeRIS controller set is ready for testing.
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Working on LED light source housing model and drawings, magnets selection, steel plate, and ordering parts
- Diana LaScala-Gruenewald
- Eric Martin
 - 708167 - WEC Dynamics and Control
 - Revising SW dev plan, and meeting with group.
 - 901101 - Seafloor Mapping
 - Prepping for WF cruise
 - Submitting cable assemblies for fab.
 - 901206 - Coastal Profiling Float
 - HDBP meetings
 - Tank test mods
 - 901911 - ROVVR
 - Seems like we got some good footage at octopus garden last week.
 - Prepping for final phase of SCOPE effort.
 - 902100 - Telepresence on MBARI Research Vessels
 - Supports Katija and Barry cruises on the Rachel Carson and Western Flyer concurrently.
 - 368000 - DMO AUV
 - Finished hours estimate and still coming up to speed.
 - Overhead
 - Hiring interviews for Dorado Engineer through yesterday, one more to go.
 - Out of Office
 - Tuesdays until school is back in session.
- Thom Maughan
 - 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.
- Mike McCann
 - 901009 - CANON
 - The kraken2.shore.mbari.org server is up and running with a self-signed certificate
 - Link to Jupyter Notebook that visualizes parquet data added to end of [Issue 837](#)
 - 901910 - Plankton Taxonomic Groups from AUVs
 - Monique is testing parquet export from the kraken2 server
 - Testing fix for missing data edge case seen in Dorado survey 2004_251_00
 - Out of Office
 - Vacation days: 29 March - 2 April
- Rob McEwen
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Working on lcm replay setup.
 - Will use this to debug OA code by replaying February's Portuguese Ledge runs.
 - Will also use this to assist Henthorn in debugging TRN on the LR.
- Paul McGill
 - 901618 - Pelagic-Benthic Coupling
 - Calculated new estimated positions for Rover and SES so that Wave Glider can talk to them at Station M.
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 - 901700 - Acoustical Ocean Ecology
 - Shopping for Enet switches for MARS Echosounder
 - Made adjustments to parts for WBT Mini Faraday shield and received new parts from James M. Will attempt to assemble them this week.
 - Resumed hyperparameter tuning on CNN for sonar identification.
 - 901803 - Carbon Wave Glider Development
 - Ordered parts for work stand.
 - 901904 - Deep-Sea Coral-Sponge Community Observatory
 - Attempted to stabilize Coral Cam video from last deployment with limited success, now trying to calculate dense optical flow so we can get an idea of how the camera is moving in the current.
 - Worked with Aaron S. to size housings for Deep Sea Data Connect.
 - Drawing schematics to get new laser power supply and flasher fabricated for Coral Macro Cam.
- Ed Mellinger
- Tom O'Reilly
- Craig Okuda
 - 901803 - Carbon Wave Glider Development
 - Assemble test stand
 - Redesign fluid manifold
 - Design test wiring
 - Out of Office
 - Vacation day
 - Overhead
 - Wireless system planning
- Doug Pargett
 - 708146 - NOPP Saildrone
 - Discussing how to improve the ESP's seawater intake system on the Saildrone.
 - 881135 - 3G ESP Cartridge Redesign

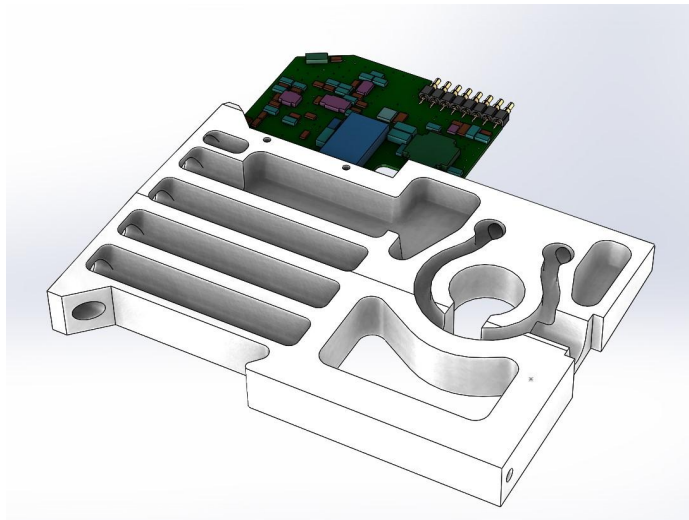
- I designed a new “blank” cartridge that matches the porting and geometry of the new G3 ESP cartridges. The old blank cartridges were called “Fish” due to their shape. It is unlikely we can continue to call these “Fish”. Perhaps “Not A Fish”



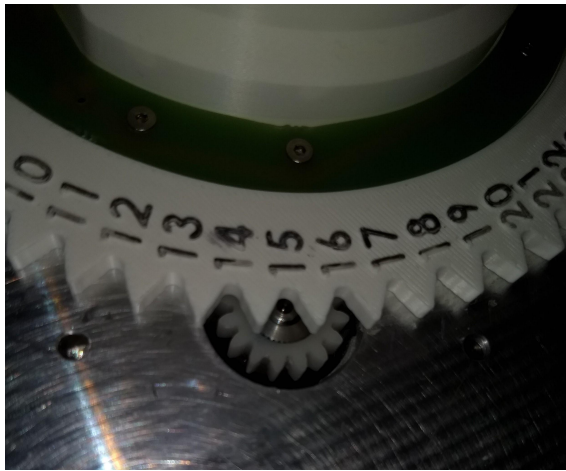
- A Fish:



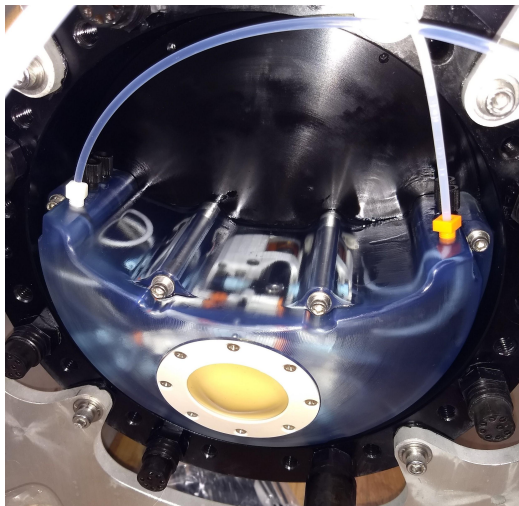
- Not A Fish:
- These also have the capability of accepting a small electronics board and that would upgrade the blank cartridge to be “Smart”.



- Smart Not A Fish:
 - 901205 - ESP SURF Center
 - Replaced valve pins and seals on a few carousel positions of the ESP Honu instrument.
 - Inspected and realigned the carousel drive on MV2 due to a gear slipped on the shaft.



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- Installed a pump into the MV2 instrument, and filled the oil dome. This oil dome was printed on MBARI's in-house acrylic 3D printer. Thanks!



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- Overhead
 - Seminar
- Ben Raanan
- Mike Risi
 - 200105 - Core Nav - MDUC
 - Worked with Rich and Kevin on test of code on March 17th Rachel Carson cruise
 - Working on minor bug fixes revealed during test cruise
 - MOBed for March 25th on Rachel Carson, but the dive was canceled. Meeting with Kevin and Rich to come up with plan B
 - 901101 - Seafloor Mapping
 - Continuing work with Chad and Eric on LASS TCU design
 - 902001.99 - 4K ROV Camera Development
 - Reviewing lapbox design for 4K camera
 - Out of Office
 - April 26-30: Ocean Imaging Cruise
 - May 3-7: Vacation
 - September 3-14: Ocean Imaging Cruise
 - Vacation on alternate Fridays
- Brent Roman
 - 708146 - NOPP Saildrone
 - Wrote a script wrapper around GNU "screen" to automate recovery after Iridium Next link's routine failures
 - 901205 - ESP SURF Center

- Worked with Scott Jensen to diagnose environment sensor failures on our 3G hostgate boards
 - 901913 - Demonstrating high-speed communication with a submerged AUV
 - Still in ITAR limbo. Oceancomm themselves are not yet sure how modems should be classified
 - Suggested we leave the modem at Oceancomm for now, but provide MBARI net access to it.
 - Overhead
 - Updated a bunch of desktop Linux machines from Debian “stretch” to “buster” and “bullseye”
 - Stopped using the xfce4-power-manager
 - Out of Office
 - March 29-April 2 + 2wks away from the office due to quarantine
 - Traveling up to Oregon & Washington to visit colleges.
- Carlos Rueda
 - 708168 - DHS Y7
 - Some Dash assistance to WHOI
 - 902005 - VARS Annotation Assistance
 - More Cthulhu fixes ([PR](#))
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Good discussion with Ben and Brian re TethysL, and next tasks.
 - Put together a webhook to [perform XML file validation](#) upon pushes to the lrauv-config repo. Supporting tooling will also allow other various actions (e.g., smoke testing for lrauv-application, .tethysl validation and translation to .xml, etc.)
 - 902102 - Multi-LRAUV Simulation Environment
 - Brief chat with the team about Docker and setting up members at Docker Hub under MBARI.
 - Overhead
 - Check-in meeting; Chris Bertish Seminar; Fidelity presentation
 - Out of Office
 - Mar 26: vacation
- Karen Salamy
 - Overhead
 - Continued work on Rich S responsibilities succession plan
 - Working on some scripting for miniROV work
 - Looking into a text editor app for Precruise form.
 - Out of Office
 - Out sick most of this week with a doozy of a cold.
- Brian Schlining
 - 500055 - Video Annotation DM
 - Modified the VARS Knowledgebase app to [include additional, atypical taxonomy ranks](#). New release is [here](#).
 - Updated dependent libraries required for this build and published them on [Github Packages](#).
 - Created [a tool to generate a report](#) that lists taxa that are missing expected taxa ranks.
 - Begun work on [next-gen Deep Sea Guide and Query](#).
 - 902002 - Fathomnet Detect and Classify
 - Meeting with Squiddle developers
 - Meeting with JAMSTEC
 - Updating [script to build custom taxa trees](#) for upcoming paper.
 - Working on aggregating updated data embargo requests and implementing them in order to publish “real” data to fathomnet.
 - Investigated issue that Linda Kuhn was experiencing with starting VARS
 - Overhead
 - Continue to meet with CSUMB capstone students working [Cthulhu](#)

- Discussion with Kathy Dunlop (now at Havforskningssinstituttet in Norway) about setting up the older VARS system.
 - Discussion with Kara Eckley about running older VARS on Windows
- Rich Schramm
 - 200105 - Core Nav - MDUC
 - Deployment and testing of new navproc/LCM on Carson.
 - Finalize configuration of new XOJO dataprobe for Carson/Ventana
 - Starting to work on tweaks to EXPD loadpaths needed by new navproc
 - Overhead
 - Continue meeting w/ Danelle and Karen Salamy on Oasis3 handoff
 - Out of Office
 - 5/12 thru 5/14
- Alana Sherman