

# Eric Martin Sorted By Project

## 901101 - Ocean Imaging

- Working on refining the strobe lighting model, the first pass gave us light spacing locations and the next will hopefully help dictate final pattern. (Week 5)
- Working with Hans regarding power distribution for the new strobes and conversion to fiber telemetry. (Week 5)
- Working on new strobe position evaluation (Week 6)
- getting spare boards built up (Week 6)
- Integrating new rotators and strobes onto the platform, loading on the Flyer for a cruise starting next Wednesday. (Week 7)
- At sea this week. Testing new strobe arrangement. (Week 8)
- Efforts at sea last week have proven the light bar concept can produce great improvement in image quality. However difficulties with collecting data at depths greater than 1500 meters will need further investigation. (Week 9)
- (Week 9)
- Following up on the cruise, we have installed the critical components to ride along on the Barry cruise and see if we've resolved the issues we saw at sea. (Week 10)
- Reviewing intern applications (Week 10)
- Looking at getting cables for Axial cruises in the fall, so far all the vendors are still open and running. (Week 14)
- Scoping strobe guard modifications (Week 16)
- Strobe upgrades meeting (Week 18)
- Internship update meeting (Week 18)
- Collaborator update with Giancarlo (Week 18)
- Internship check in call. (Week 21)
- Falkor time has been scheduled, Dave has reached out and we're compiling integration information for the ROV team there. (Week 21)
- Documentation organization (Week 22)
- Phone call tuesday (Week 23)
- Coordinating Strobe upgrades (Week 23)
- Submitted servo coil drive board to e-tech for build (Week 24)
- Strobes are in for refit (Week 24)
- Intern meetings this week (Week 24)
- Our intern, Jose, has been doing fantastic work to improve the speed and reliability of stereo calibration procedures. I am working on getting components for a tank calibration. (Week 25)
- This means we need a new optical target, as the old one has warped. (Week 25)
- Working with intern (Week 26)
- Strobes have been modified, waiting for bulkhead replacements (Week 26)
- Brought sled to test tank, rebuilding it for testing in the tank. (Week 28)
- Tank prep (Week 29)
- Intern advisement. (Week 31)
- Lidar Returned (Week 35)
- Second strobe back from new bulkhead installed (Week 35)
- Next steps are to build the sled up for a full tank calibration in the next two weeks. (Week 35)
- Installing lidar system this week, aiming for tank testing soon. (Week 37)
- Added lidar system to frame (Week 38)
- Getting TWA for tank work (Week 38)

- Lining up for tank tests next week (Week 38)
- Preparing for the Western Flyer cruise October 12-17. (Week 40)
- Working with Giancarlo Troni and Jose Antonio Eyzaguirre Dominguez from Pontificia Universidad Católica de Chile to implement new camera drivers (Week 40)
- Working with Domenic at 3DatDepth to adjust issues found during tank testing of the lidar. (Week 40)
- Preparing telepresence needs for the cruise (Week 40)
- Purchasing Spare linden cables. (Week 40)
- Mobilizing for the 10/12-10/17 expedition (Week 41)
- Working with collaborators on new camera driver (Week 41)
- Last week's expedition was very successful, we collected surveys on all full days of areas including Sur Ridge, the 2850 CCE Clam Bed Site using the low altitude sled. This cruise was the first use of telepresence for remote engineering as well, as we leveraged help with new camera control drivers from our collaborators Giancarlo Troni and Jose Eyzaguirre in Santiago, Chile. (Week 43)
- Converting drawings from Altium to Orcad. (Week 44)
- Soliciting quotes for replacement cables. (Week 44)
- Discussing internship and Compas Lab future efforts post-cruise. (Week 44)
- End of year purchases underway (Week 46)
- Ordering cables and hydraulic equipment, as well as focal spares. (Week 47)
- Cable and parts manifest, (Week 48)
- building quotes and drawings updates (Week 48)
- Finalizing drawings and fielding quotes (Week 49)
- Purchasing spare and parts repair. (Week 51)

## 901200 - Telepresence

- Abstract presentation went well, and we have been encouraged to start operations right away. (Week 25)
- Sent a survey out to PIs to collect interest and needs. (Week 25)
- David Lees seminar led to some interest in xgds for use at MBARI in 2021. (Week 25)
- Preparing discretionary request (Week 26)
- Discretionary Funds request submitted and approved (Week 28)
- Proposal discussions with Kevin Gomes and Craig Okuda (Week 28)
- Prepping for two cruises on the Carson next week, this will be the first use of new telepresence tools. (Week 29)
- Successfully provided telepresence on the new prototype system with remote direction and remote user control of the feed. Moving the system over to Ventana today for Chavez cruise. (Week 30)
- Met regarding Katija cruise in August. (Week 31)
- Smith days were a bit of a bust due to Microwave issues due to the River Fire (Week 35)
- VSAT on the Western Flyer is working well so far for Robison cruise. Webex proves to have a few glitches, but the most stable video solution at the best quality. (Week 35)
- Onboarded Paull Group for a month of telepresence scheduled in September (Week 35)
- Telepresence can be totally managed remotely from the shore side, demonstrated on the WF. (Week 35)
- Modifying Prediver form with Karen Salamy (Week 35)
- Phase 2 Responses (Week 35)
- Finished policy doc with Kakani (Week 37)
- Training for Paull Cruise (Week 37)
- Implementing new audio guideline from MT (Week 37)
- Paull cruise running along (Week 38)
- AMP day on the Carson this thursday (Week 38)
- Ken Smith had 2 successful telepresence enabled dives Monday and Tuesday. (Week 40)
- Charlie Paul wrapped up 3.5 weeks of continued telepresence on the Western Flyer this Tuesday. We had very few outages, and a consistently good enough performance for the USGS collaborators to make a meaningful contribution. (Week 40)

- Submitted board bullets (Week 41)
- Preparing board package slides (Week 41)
- We are on a break until the Carson returns from shipyard. (Week 43)
- We are in the second round of edits for the policy document. (Week 43)
- Supported the Caress cruise last week. (Week 43)
- On break until the Carson returns from shipyard. (Week 44)
- Attended an introductory meeting with Toyota Robotics Institute organized with Steven Litvin centered around a potential collaboration on telepresence products for subsea engagement. (Week 44)
- Onboarding for Barry Group (Week 47)
- Bringing Teresa Cardoza up to speed on the system after her leave. (Week 47)
- Many thanks to Karen for finishing the precruise mods! (Week 47)
- Training for Barry group, and remaining trip prep (Week 48)
- Supporting Jim Barry Cruise 12/1-12/7 (Week 49)
- Supported the Barry cruise last week on the Western Flyer (Week 50)
- MBA cruise on Monday (Week 50)
- The telepresence policy has been accepted by MT (Week 51)
- Telepresence last Monday for the Aquarium. (Week 51)

## 901206 - Coastal Profiling Float

- Conducting the battery audit and final batter pack assembly. (Week 5)
- Battery audit (Week 6)
- Battery pack builds (Week 6)
- Waiting on hardware and PCBs to continue final integration. (Week 7)
- Met with Gene, building up battery packs with Ed. (Week 9)
- Bringing a new system online. (Week 10)
- Closing up SN03, ready for tank (Week 11)
- Finished transition of info to Gene. (Week 12)
- Writing calibration software for MBARI MSC (Week 12)
- Developing Float Server Service Daemon (Week 13)
- Shoreside server effort continues (Week 14)
- Server testing (Week 16)
- Testing the new server, adding more features. (Week 17)
- Server Effort (Week 18)
- Server features expansion, database components (Week 19)
- Server testing (Week 20)
- Calibration software (Week 20)
- Reviewed lab plan (Week 21)
- Went to MBARI last week to get hardware to test new code against here in the garage. (Week 21)
- ZMODEM Transfer reliability testing on new server. (Week 22)
- Brought system back online, still in excellent condition, and the shutdown presented an excellent test of the battery pack discharge while disabled. (Week 23)
- Preparing for the final prefill tests on friday. (Week 23)
- Deck tests complete, no issues, filling with oil soon. (Week 24)
- Filling with oil this week. (Week 26)
- Oil tested on new pump arrangement (Week 28)
- Developed test tools for automation from the lab computer. (Week 28)
- Calibrated bellows on the buoyancy engine (Week 35)
- Prepping for tank testing. (Week 37)
- CPF bug squashing underway (Week 38)
- First tank profile completed (Week 38)
- Bug fixes are queued after successful profiles (Week 40)

- Met with Gene to discuss next steps. (Week 40)
- Identifying next steps after tank tests were successful. (Week 41)
- Troubleshooting a repetitive SD card corruption issue. (Week 43)
- Running test profiles to polish out science files getting generated (Week 44)
- Bringing up hardware on the second gen 3 build. (Week 44)
- Bringing up the SN002 (Week 46)
- Writing calibration mode program (Week 46)
- Calibration tools ready (Week 47)
- Calibration software tuned and working for ISUS and DuraFET (Week 48)
- Cal program certified, qualifying CPF unit 2 for hydraulic buildout (Week 49)
- Setup calibration for CPF003's DuraFET (Week 50)
- Finished production checkout on CPF002 (Week 50)
- Reviewing Sysprog contracting options (Week 50)
- Setting up home tests for console code cleanup (Week 51)
- Exploring replacement microprosser ST Nucleo board (Week 51)

## 901405 - PowerBuoy Development

- Checking trefoil battery pack (Week 5)
- Trying to divine pressure sensitivity in the new laser range finder. (Week 5)
- Selected new SBC to replace the beleaguered Beaglebone. (Week 5)
- Bringing up new controller board. (Week 5)
- PTO wiring edits (Week 6)
- Finalized the fix on the PTH sensor and reflected changes in schematic for the bridge controller board. Need to decide if we'll modify the new spring controller next. (Week 6)
- Bringing up the new Technologic SBC. (Week 6)
- New SBC brought up (Week 7)
- Redrew the Buoy Controller Housing, prepping for re-wiring (Week 7)
- Finalizing drawing for the Spring Assembly (Week 7)
- (Week 7)
- Wiring spec for buoy controller (Week 8)
- Buoy controller rewiring is almost complete, I will need to check it out next week. (Week 9)
- I'm working with Jose to route a board for breakout of the load cell amplifier. (Week 9)
- First draft of the spring wiring in for review to Andy. I'll need to rework the spring controller for a few missed items in my BOM. (Week 9)
- Helping finish the spring controller software checkout (Week 10)
- Top hat wiring underway (Week 10)
- Buoy controller rewire complete, testing (Week 10)
- Laser range finder drawings (Week 10)
- Controller box is working, new network configured (Week 11)
- Spring controllers are checked out, getting wired into the spring (Week 11)
- Buoy controller wiring checkout (Week 12)
- Worked with IS for a stable VLAN configuration (Week 12)
- Software meeting on Monday (Week 13)
- Seems like testing can continue with the radar for now. (Week 13)
- LCM tool upgrades complete (Week 16)
- Reviewing DOE proposal RFP (Week 18)
- Reviewing proposal materials (Week 19)
- Reviewed funding proposal. (Week 20)
- Supporting the radar work, we've got some traction with our collaborator and I'm making sure he's got what he needs. (Week 21)
- Wrote a nifty snippet for parsing LCM traffic from pcap files collected via wireshark. (Week 21)

- Picking up the trefoil rewiring, met with Jose to see where it got left. (Week 23)
- Got tophat endcap and parts together for rewiring. (Week 23)
- Prep for radar deck and potential Paragon tests (Week 24)
- Helping with tophat rewiring (Week 24)
- Backed up TS7970. (Week 25)
- Testing top hat electronics, working so far, small adjustments necessary. (Week 26)
- Getting radar data into analysis (Week 30)
- Pushing through cable wiring (Week 30)
- NSF project meeting (Week 31)
- Aiding in data reduction for radar data, some has gone missing. (Week 31)
- Fixed hardware/software issues on tophat controller, all functions are working now. (Week 35)
- Closed tophat (Week 35)
- Radar fix is next. (Week 35)
- Looking at radar data a little (Week 46)

## 901702 - Benthic Lander

- Providing information for the operational components to the technical writer on contract. (Week 16)

## 901807 - Next Gen Acoustic Dorado

- Noise has returns on the last set of dives, we'll dig deeper to see if the multiple collisions on the AUV has damaged something in the sphere. (Week 6)
- At sea this past Mon-Tues, short a few transducers. (Week 7)
- System at sea this week, so far seems to have achieved its mission. (Week 9)
- Investigating CTD issues (Week 10)
- Most of the noise is gone, one more source remains. (Week 10)
- Had a meeting and discussed improvements to AUV mission timing accomplishments. (Week 10)
- Wrote MT project impact report (Week 16)
- Revisiting goals for the year, some engineering dives were lost. Those goals may be requested in 2021. (Week 22)
- Proposal discussion for 2020 (Week 26)
- Back at sea this week, in full control of DMO at this point. (Week 26)
- Investigating python package `echopype` for parsing ek80 data (Week 31)
- Lights are back from the shop with filter boards installed. (Week 38)
- Reviewing 2021 schedule. Some tasks from this year have been descoped and moved into 2021. (Week 40)
- Looking at EK60 data conversion needs. (Week 44)
- Using echopype to generate ascii data (Week 46)

## 901911 - ROVVR

- Kickoff meeting and report from CES. (Week 5)
- The camera is hopefully in final testing after chemically strengthening the domes over the holidays. We should hear next week, and hope to have the camera integrated for Jim Barry's next Flyer cruise. (Week 5)
- The camera is mid cycling, and domes apparently are holding up well. We'd like the system back next week for integration onto the ROV. (Week 6)
- Hosting a rep from Looking Glass Factory this Thursday to investigate the holographic display tech. (Week 7)
- Getting the camera back for integration. (Week 8)
- Met with Leila Takayama (UCSC) and are developing projects for her students to undertake that will accelerate our AR element generation. (Week 9)
- Met with Leila Takayama, spinning up some student projects for collaboration on ROV tasks and historical data presentation. (Week 10)
- Heading to Oregon next week to get training on the new camera. (Week 10)

- In Salem OR Thursday/Friday for Training/FAT (Week 11)
- Successful FAT and training in Salem, OR last week onsite at the Sexton Corporation. (Week 12)
- Brought camera back and integrated it easily onto Doc Ricketts (Week 12)
- We'll likely miss getting any footage before the shipyard due to the closures, we are drumming up a test scheme for (Week 12)
- Helping Kakani with a proposal for the Dassault Foundation (Week 13)
- Wrapped up trip to Oregon (Week 13)
- Group meeting with UCSC crew, they have some enthusiastic students that want to chip in. (Week 14)
- Dassault Foundation proposal. (Week 14)
- Trying to interface mesobot data to students for a dataset until we have a full dataset from Ricketts. (Week 14)
- VARS Data preparation for UCSC handoff (Week 16)
- Got a workflow established for location based VARS query and data ingestion for historical data presentation in VR. (Week 17)
- Supporting UCSC team as they start the image analysis tasks on available MiniROV stereo image data. (Week 17)
- UCSC student data sharing spin up (Week 18)
- Update call on wednesday, UCSC collaboration is underway (Week 19)
- Meeting with UCSC last week, good progress is being made (Week 20)
- Ben Erwin was able to download some VR video off of the cameras, we can start doing some photogrammetry now. (Week 20)
- Ben got data stuck on the ship to UCSC collaborators, update meeting on their progress today. (Week 21)
- Check in call with UCSC. (Week 22)
- UCSC Check in today. (Week 23)
- Had a final presentation from the UCSC students last week, they did some nice work to build some data UI tools (Week 24)
- Working on a stereostich/unity bridge (Week 25)
- Our Olin College collaboration has been funded by the Dassault Foundation, we'll have a class of students working on ROV visualizations in the fall semester. (Week 25)
- Discussing a new PC for better control room integration. (Week 26)
- Camera is at sea finally, hopefully collecting video as part of the Robison cruise (Week 35)
- Preparing to kickoff our Olin student team with Kakani. (Week 37)
- Getting Olin students spun up. Meeting with Olin professors today. (Week 38)
- Olin students continue to make excellent progress, we have weekly check ins to mark their progress and adjust efforts and priorities. (Week 40)
- Progress from our Olin student team is good. (Week 41)
- Working to supply them with contextual data. (Week 41)
- Preparing for tank calibration and testing with the Olin team. (Week 43)
- Tank calibration this past monday. (Week 44)
- Working with Olin student group, who are excelling at presenting realtime data for us. (Week 44)
- Modifying mwt-lcm-types for rovr additions (Week 47)
- SCOPE meetings (Week 47)
- Spares purchasing (Week 47)
- SCOPE Meeting (Week 48)
- Expanded LCM types for MiniROV to have more contextual data. (Week 48)
- SCOPE meeting (Week 49)
- Writing software to convert navproc messages to lcm types (Week 49)
- Setting up in the tank for testing of Olin student software. (Week 50)
- Fixed mink10L to support Gigabit ethernet (Week 50)
- Tank tests and integration on the Mini ROV are complete, we were able to demonstrate VR in the test tank, and collected needed data for the enxt phase of our collaboration with student at Olin College. (Week 51)
- (Week 51)
- A VR view of the bottom of the test tank with ROV data overlays in testing (Week 51)

## DQ1942 - Buoy Power Generation

- Amending drawings for new Radar (Week 7)
- Radar wiring was part of the controller wiring, we'll be able to test the system next week. (Week 9)
- Once the buoy controller checks out, we'll have the radar running. (Week 10)
- Radar nearly integrated, protective cover installed (Week 11)
- Built radar shield dome, radar is integrated (Week 12)
- Documented effort and wrote a brief collaborator's guide. (Week 12)
- Handoff of wireshark LCM parsing tool. (Week 22)
- Prepped for tests this week, backed up image of TS7970 for spare buildup. (Week 25)
- Once tests complete, we can pursue tests on the Paragon. (Week 25)
- Finally got data from the radar last week (Week 26)
- Preparing for paragon test. (Week 26)
- Worked with Dale Griffith JH APL (Week 28)
- Prepping for Paragon work next week. (Week 28)
- Starting Testing July 8, 9, and 10th. (Week 28)
- Tests on the Paragon were successful, we'll be analyzing datasets next. (Week 29)
- Hunting down login issues on the radar system. (Week 37)
- Found issue with radar logging, verifying before scheduling a paragon day. (Week 38)
- Another Paragon trip this past Monday to collect 3-4 hours of radar data, and now our collaborators will (Week 40)
- Took out Paragon last week, and collected radar data for our collaborators. (Week 41)
- Extracted AHRS data for our collaborator who will be applying the transformations to the radar data. (Week 43)
- Handed over AHRS data to Rob McEwen (Week 44)
- Attended bi-weekly meeting with collaborators (Week 44)
- Looking at radar data parsing outside of Matlab (Week 47)
- Biweekly Meeting (Week 48)
- Looking at radar data for real-time processing. (Week 48)
- Analyzing radar packet structure (Week 49)
- Biweekly meeting last friday (Week 50)
- Helping Rob get started on data analysis (Week 50)
- Working on utility to create a radar playback utility to test online wave identification from logged data on the Paragon. (Week 51)

## Data preparation for UCSC handoff

## Internship planning

## LCM tool upgrades

## Out of Office

- Due to childcare needs I'm half time until schools reopen. I tentatively plan on being online from 12:30-5:30.
- Needed a full special leave day today (Wednesday)
- Due to childcare needs I'm half time until schools reopen. I tentatively plan on being online from 12:30-5
- I'm back fulltime this week.
- 1 appointment yesterday afternoon.
- I am not at MBARI Mon, Tues, and Friday
- Half day this upcoming friday for a doctor's appointment.
- I am at MBARI Mon, Tues, and Friday
- Vacation days on thursday when available.

- Vacation 7/13-7/15
- Tuesdays until 2:30PM
- This tuesday took the whole day, doctor's appointment.
- Tuesdays
- Nov 1-7 Vacation upcoming

## Overhead

- Participated in the breakout sessions for the ERC. (Week 9)
- Attending Online IEEE-VR conference (Week 13)
- Training on Tuesday with GTC on CUDA C/C++ (Week 13)
- Attending select lectures at GTC. Attended a day long class in C/C++ accelerated computing with CUDA. Surprisingly I learned a great deal! (Week 14)
- Orcad training (Week 16)
- Started PCB editor training on Orcad (Week 17)
- Orcad Training here and there. (Week 18)
- Orcad training (Week 19)
- Ricketts Jira Upgrade (Week 19)
- Telepresence scoping, carrying on a lot of calls with experienced groups (Week 19)
- ORCAD PCB Training (Week 20)
- Return to work plan (Week 20)
- Telepresence scoping and abstract (Week 20)
  - Lots of calls with industry leaders and engineers (Week 20)
    - URI Innerspace Center (Week 20)
    - SOI satellite team (Week 20)
    - Isotropic Networks (Week 20)
    - NASA Ames Telerobotic (Week 20)
    - MBARI IS (Week 20)
    - A few other private contractors. (Week 20)
  - Finalizing a concept proposal with cost estimates. (Week 20)
- Finished telepresence scoping effort, which ended with high likeliness that we can make this happen pretty quickly. Initial feedback is positive. We've decided to take advantage of the initial effort and writing to field a new project proposal for 2021 to continue and support the effort. The window is closing for any further tests before shipyard, and we may need a solution for August as soon as the boat returns. To this end we're requesting for a test next week if we can be allowed to be on the boat. (Week 21)
- Telepresence scoping complete with letter transmitted to the MT. We are talking to Mike Kelley regarding a possible test and necessary resources. (Week 22)
- Western Flyer telepresence tests were extremely successful. Wrote a report and submitted to MT for review. Also wrote an abstract to continue this work in 2021. (Week 23)
- Abstract presentation for telepresence (Week 24)
- TAG review of abstracts (Week 24)
- Handing over design files for valve pack electronics to Chad Kacy and Andy Hamilton (Week 40)
- Helped briefly with acoustic noise tests on the Moog Hydraulic valves last week. (Week 41)
- Archived WF Jira, installed test server. (Week 48)
- Attended bi-annual Scientific Ocean Vehicles Alliance (SOVA) meeting, a new committee involving vehicle operators from SOI, WHOI, UH, OET, and NOAA. Topics discussed included recent acceleration of Telepresence, COVID restrictions, interest in VR tools, and growth of the community itself. (Week 50)
- Helping Lonny Lundsten shore up code for M3RS monitoring devices. (Week 51)

Server testing

Strobe modification design