

901904 - Deep-Sea Coral-Sponge Community Observatory

Week 50

1. Paul McGill
 - a. Ordered dummy plugs for Deep Sea Connect antenna connectors.
2. Alana Sherman
 - a. Discovered the reason for macro camera failure, it was a message on the LCD waiting for a finger to push to turn off. Luckily we got two days of beautiful images and everything else worked. We will try to get the Canon EOS R6 integrated in January.

Week 48

1. Paul McGill
 - a. Worked with Alana and Aaron to get Coral Macro Cam ready for Barry cruise leaving Thu morning. Alana and I will support deployment through telepresence.

Week 46

1. Paul McGill
 - a. Working to get Coral Macro Cam reassembled
 - b. Tested Deep Sea Connect can on Ricketts ROV

Week 45

1. Paul McGill
 - a. Reconfiguring Coral Macro Camera to put laser drivers inside camera housing
 - b. Met with Doc Ricketts pilots to interface Deep Sea Connect hardware with ROV
2. Alana Sherman
 - a. Discovered issue with new Snappy boards not working. Requires a quick fix- hopefully. Learning more about the datalogger and trying to integrate parts into the Coral Camera housing with James help.
 - b. Testing out new cable for remote shutter.

Week 44

1. Paul McGill
 - a. Working with Alana to integrate targeting laser system into main camera housing.
2. Alana Sherman
 - a. Looking for an data logger to monitor in camera housing in case of another failure

Week 43

1. Alana Sherman
 - a. Endless testing in cold room and on the bench to try to figure out what caused the failure we experienced in the last deployment. It is very frustrating as I can't get it to fail again.
 - b. Reviewed software for Coral Macro compared with large Coral Cam and Smith Macro cam and did not find any significant differences which could explain the issue.

Week 42

1. Paul McGill

- a. Working with Alana to troubleshoot failure of Coral Macro Cam during last deployment. We can't figure out what stopped data collection after 6 hours.
2. Alana Sherman
 - a. Continued testing on macro to try to recreate the failure during the last deployment. All my tests have not resulted in any duplication of the failure. The system is not in the cold room running over night. Not sure what to try next.
 - b. Ordering more batteries for both systems as the lead time is now 6 months!

Week 41

1. Paul McGill
 - a. Made a movie of images from recent Coral Macro Camera deployment and am working on write-up for board bullets.

Week 40

1. Paul McGill
 - a. Deployed Coral Macro Cam from Carson, will get picked up this week
2. Alana Sherman
 - a. We deployed the Macro camera last week. The Deepsea connect worked amazingly well, thanks to the efforts of Paul McGill, Paul Coenen, and Aaron Schnittiger who pulled it off! The system is being deployed for 6 days taking images every 5 minutes of a coral. We will

Week 39

1. Paul McGill
 - a. Tested Coral Macro Camera in Test Tank with Alana et al.
 - b. Loaded ship for Carson cruise on Thu.

Week 38

1. Alana Sherman
 - a. Tank testing of macro coral camera started off very good until I tried to do a mock deployment then the wheels came off. After a lot of disassembly the culprit was a bad cable that is pinched due to the constraints of the housing and camera. We shifted the camera and then were lucky enough not to have to do much to get the focal plane where we wanted it. Also realized an issue with how the camera assigns the USB function which makes validating tank testing much harder because you essentially cant see the memory cards and also use the remote shutter function. This system will deploy next week but leaning towards getting the Canon version to try out.

Week 36

1. Paul McGill
 - a. Tested Deep Sea Data Connect with Alana. Finishing wiring and mechanical design of components.
2. Alana Sherman
 - a. Testing of internal battery looks promising, so we can continue forward with the sony

Week 35

1. Paul McGill
 - a. Tested ROV cable for Coral Macro Camera so it's now ready for potting.
 - b. Finished system schematics for Deep Sea Data Connect.
 - c. Finished assembling and testing laser targeting system for Coral Macro Camera, will mount them on tripod on Thu.

2. Alana Sherman

- a. Arghh, found an issue with our Sony a7R3, which is that the internal battery (which is not customer serviceable) gets drained resulting in the loss of date/time info. While I found a software work around that allows me to still take images, it does not solve the issue of not having a timestamp. I am running some tests to try to determine the lifetime per charge of this battery. And thinking about hacks to make it work. We are far in to change the battery.
- b. Still have one strobe to reprogram, trying to collect the pieces to do that but missing a test cable..

Week 34

1. Paul McGill

- a. Finished schematic for ROV cable on Deep Sea Data Connect for Coral Macro Cam
- b. Tested new laser aiming system for Macro Cam, met with Jim B. to agree on settings
- c. Ordered cable and connectors to extend RF cables for Deep Sea Data Connect
- d. Trying to solve weird Sony camera issue with Alana

Week 33

1. Alana Sherman

- a. Started setting up the close-up coral camera and discovered a slew of small issues I am working through: small reprogramming of Snappy controller, program of the strobe, random Sony camera issues, reloading software after a laptop failure, etc.

Week 32

1. Paul McGill

- a. Collecting parts for wiring of Deep Sea Data Connect

Week 28

1. Rich Henthorn

- a. Weekly meeting

Week 24

1. Paul McGill

- a. Worked with Alana to test Coral Camera Tripod in Test Tank

2. Alana Sherman

- a. Worked on preparing DiSCO (Coral time-lapse camera) for deployment at Sur Ridge during the Barry Flyer cruise at the end of June. Check focus and image quality in the tank, ran overnight test of the system in tank. Working on training Steve to set up the deployment through the ROV during cruise.
- b. Testing new tilt motor and limit sensors with maxon software, this should be the last task before it is ready to deploy.

Week 22

1. Paul McGill

- a. Installed battery in DiSCO camera
- b. Compiled inventory of our numerous lasers

Week 21

1. Paul McGill

- a. Working with Adriana S. on configuration of wireless access points.

- b. Building test rig for cold-room test of targeting laser
- 2. Alana Sherman
 - a. Tested new deck cable
 - b. Order new metal shell parts

Week 20

- 1. Rich Henthorn
 - a. Weekly meeting

Week 19

- 1. Alana Sherman
 - a. Made progress testing the battery can connections, and more of the deep sea connect aspect of the system. Still having two problems with the Sony: gets into a state where it does not turn on display or go into low power mode, and can't see SD cards in windows explorer (or Sony software).
 - b. Deck cable of my dreams turned to a nightmare as it does not handle the ethernet signals well despite appearing to be suitable to the task. Trying to find new option.

Week 18

- 1. Alana Sherman
 - a. Finished schematic for tilt motor, gathered components for tilt motor for DiSCO camera
 - b. Finished schematic for battery housing for Macro
 - c. Trying to find right and down angle connectors for Sony system

Week 16

- 1. Rich Henthorn
 - a. Weekly meeting
 - b. Assist with camera controller software
- 2. Alana Sherman
 - a. Working on the macro camera. Worked out my initial issues with USB switching and strobe sync.
 - b. Updated the Snappy software to have the proper timing for the new strobes, seems to be working well in testing.
 - c. Set up test to check strobe sync with camera shutter and light signal with Paul R's help. Hoping to start overnight test of system soon.
 - d. Making schematic for the

Week 14

- 1. Alana Sherman
 - a. Pulling the pieces together for the macro camera, hope to start testing the wired chassis this week.

Week 12

- 1. Paul McGill
 - a. 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.
 - b. Worked with Aaron S. to size housings for Deep Sea Data Connect.
 - c. Drawing schematics to get new laser power supply and flasher fabricated for Coral Macro Cam.

Week 11

1. Paul McGill
 - a. Met with Aaron to figure out housing sizes needed for Deep Sea Connect hardware.
2. Alana Sherman
 - a. Getting the pieces in order for the macro
 - b. Worked with Steve from shore to get the talking to the Coral Observatory and download images. First report was it took images for 11 months, waiting to hear how the images turned out.

Week 10

1. Alana Sherman
 - a. Put together a sea-going kit to recover the time-lapse camera system, this posed more difficulty as the two laptops I was using, had separate but equally frustrating problems to overcome but now both are operational.
 - b. Ordered new deck cable for the system but still not sure it looks tough enough so I ordered another. Other cables for the system arrived.
 - c. Worked out component placement with Aaron for the camera housing. The cap charger boards arrive and I will begin to test those.

Week 9

1. Alana Sherman
 - a. Finished cable schematics, they are ready for the techs
 - b. Ordered new cable for camera systems
 - c. Revised procedures for DiSCO recovery

Week 8

1. Alana Sherman
 - a. Worked out last details with James on cap charger boards

Week 7

1. Alana Sherman
 - a. Continuing to refine camera schematics, they are done now.

Week 6

1. Rich Henthorn
 - a. Weekly meeting
2. Paul McGill
 - a. Reviewed schematics with Alana.
 - b. Tested magnetic reed switches through Ti housing, and they work.
 - c. Reverse-engineering POE injectors so they can be modified to deliver power both ways.
3. Alana Sherman
 - a. Finished schematics, reviewed connections with Paul and found quite some mistakes, fixing those now.
 - b. Working with James on mechanicals of cap charger board
 - c. Had to reorder Ultravolt cap chargers when the ones received were the wrong package type

Week 5

1. Paul McGill
 - a. Ordered connectors for Coral Macro Cam wireless comms.

- b. Reviewed Coral Macro Cam schematic with Alana.
- 2. Alana Sherman
 - a. Working on camera schematics
 - b. Working through component selection with James for the Cap Charger/USB disconnect board

Week 4

- 1. Paul McGill
 - a. Finished system schematic for Coral Macro Cam wireless data connection. Reviewed with Alana and ordered a bunch of connectors.
- 2. Alana Sherman
 - a. Specified last part for a small interface board that contains the cap charger circuit and they relays to disconnect the camera USB. James McClure is helping with parts specifications and laying out the board.

Week 2

- 1. Paul McGill
 - a. Worked out system-level wiring with Alana for Coral Macro Camera.
- 2. Alana Sherman
 - a. Resolved issue with camera USB locking up the shutter control. Tested a working solution.
 - b. Working with Paul on cables and connectors for Deepsea Connect aspect of the macro camera

Week 1

- 1. Paul McGill
 - a. Working on wireless data connection for Macro Cam
- 2. Alana Sherman
 - a. Set up the spare Raspberry Pi for our Coral camera systems with FaceTime help from Paul. Working on the best way to release the Sony camera from the computer's control (which won't allow remote shutter triggering). Set up a relay board to figure out which lines of the USB connection need to be severed. Good news is it looks like just two lines will be sufficient to release the camera.
 - b. Reviewing Paul's plans for using DeepSeaConnect