

DeSSC 2021 Spring Meeting

10 & 11 June 2021

10:00 am Pacific, 1300 Eastern

Day One

Alice Doyle	Andrew Bowen	Adam Soule	Adrienne Copeland
Amanda Demopoulos	Amanda M.	Amy Baco-Taylor	Anna Michel
Anna-Louise Reysenbach	Anthony Tarantino	Audrey Mickle	Aurora Elmore
Benjamin Tradd	Bob Houtman	Brandi Murphy	Brett
Brian Glazer	Brian Midson	Bruce Strickrott	Caitlin Adams
Chris German	Chris Judge	Christopher Taylor	Dan Fornari
David Caress	Dorsey Wanless	Doug Bancroft	Genevieve Fisher
Guangyu	Hannah Piecuch	Hayley Drennon	Jeff Seewald
Jessica P	John Walter	Julie Huber	Justin Fujii
Jyun-Nai Wu	Keith Tamburri	Kelley Suhre	Kerry Strom
Kimberly Galvez	Leila Hamdan	Lu Wang	Maurice Tivey
Meme Lobecker	Pam Clark	Peter Girguis	Peter Ogilvy
Rachel Medley	Randy Holt	Rich Kaczmarek	Rob Munier
Rob Sparrock	Rose Wall	Ross Parnell-Turner	Roxanne Beinart
Scott White	Stefano Suman	Susan Lang	Tim Schnoor
Timothy Joyce	Tim Twomey	Tina Haskins	Vicki Ferrini

Participants – 64

Welcome & Introductions – Anna-Louise Reysenbach & Alice Doyle

- New CSDS being appointed
- Moving on, last fully virtual meeting. Hopefully next meeting will be hybrid.
- Jeff Marlow and Andrew Thurber new members
- DeSSC members introducing themselves
- Zoom Etiquette
- One more read ahead document for tomorrow's meeting. Link in chat.

Agency and UNOLS Report Q&A

Agencies and UNOLS will provide written material prior to the meeting for the attendees to review. Attendees will use this time to ask questions of the agencies or the UNOLS office.

[Read Ahead Material Can Be Found Here](#)

- NSF Report – Brian Midson
- ONR Report – Tim Schnoor
- NOAA Report – Rachel Medley
- UNOLS Report – Alice Doyle

Discussion & Questions:

For Brian Midson –

Anna-Louisa – You are looking for two program officers?

Brian Midson – perm and rotating positions. Recruitments are closed.

Maurice Tivey – Actively looking for one geophysicist.

Anna-Louisa – What does long term funding look like?

Brian Midson – Until recently we had requests for significant increases. Last few years we had smaller increases. 20% increase for next year for a new directorate. Trickle down to 10% for marine facilities. Because of COVID responses you can see a demonstration of increasing investments. We will not schedule things we cannot afford.

Adam Soule – More details on funding for COVID related impacts?

Brian Midson – ARP funds provided to NSF for COVID impacts. Programs are entertaining requests for supplemental funding. Going to be able to make whole the facilities

Julie Huber – How long do you think it will take NSF to get through the COVID backlogs?

Brian Midson – More of a Rose and Kerry type of question. They are prioritizing science that would be lost otherwise.

For Tim Schnoor –

Tim Schnoor – One of the slides talks about recertification of ALVIN. There are so many people involved and couldn't do it without them. Just wanted to recognize the team that makes it happen.

For Rachel Medley –

Rachel Medley – Want to recognize that NOAA is involved in NOMAC. There is a huge well for the deep submergence community to play a role. US EEZ mapping. Lots of opportunities coming down the pike.

Anna Louise – Any callouts for work now?

Rachel Medley – More details in the slides. June 21st is when it closes.

For Alice Doyle -

Anna Louise – Two things that came out are the COVID planning and the new form. Could you share the new COVID guidelines?

Alice Doyle – (Sharing Screen)

- Fully Vaccinated Crew & Science Party
- Mixed Vaccinated status
 - Tier one and Tier two cruises based on risk factors
- UNOLS Guidance – Institutions are adjusting to meet their requirements

Roxane – Why can't UNOLS require the vaccine?

Alice – Because it is still in an emergency use status

Anthony – How does that relate to in port activities. Once you are on the ship are you stuck on the ship?

Alice – Talk to the individual operators. It is based on their policies

Adam – Any guidance on how Tier one or Tier Two is decided?

Alice – Since the start of COVID all the operators have done risk assessments. This process will continue and as part of this process the PI and the operators will decide the tier level.

David Caress – Starting July 1 MBARI is requiring full vaccination for all crew and Science on our ships.

Alice – MFP.US - New Scheduling System. Is not just scheduling. Cruise planning. Science Portal is where you request ship time. We have made efforts to move 2021 STRSs into the new system.

Anna-Louise – I do think the important thing is that you plan to do introductory workshops for people to watch.

Alice – That is right we will do a webinar. And I am happy to answer questions if you have any.

NDSF Deep Submergence Vehicle Operations & Scheduling

NDSF Vehicle Operations Summary – Rose Wall/NDSF

Slide show available on <https://www.unols.org/event/meeting/dessc-2021-spring-meeting>

ATLANTIS midlife Refit Update – Tim Twomey/WHOI

Slide show available on <https://www.unols.org/event/meeting/dessc-2021-spring-meeting>

- Everything has been going well. About a month out from departure
- Official dock trials begin on 21 June. Sea trials begin on 24th or 25th.
- Load bank testing has worked.
- Plan to depart the yard on 12 July. Eight-day science verification cruise.
- Arrive WHOI 2nd week in August
- Huge advantage to have the lessons learned from the two previous vessels
- Dakota Creek Shipyard has been excellent partners.
- ONR has provided great support

- NSF also has been a big contributor

Vehicle Scheduling – Kerry Strom/WHOI

Slide show available on <https://www.unols.org/event/meeting/dessc-2021-spring-meeting>

- Mostly US ports in 2021 > 2022 is looking up
- MFP full ahead for scheduling
- Even if you are only going to using a vehicle for one day, you need to pay for that day.
- 2021 and 2022 are all deferred work from COVID

Amy Baco-Taylor – When will the 2022 schedules be posted

Kelly – We plan to post them as usual in late august early September

NDSF Vehicle Debrief Interviews & Post Cruise Assessment Repots

ROV Jason – Roxanne Beinart/URI

Slide show available on <https://www.unols.org/event/meeting/dessc-2021-spring-meeting>

Questions should go to Jeff Seewald as I was not at these debriefs.

ROV Alvin – Roxanne Beinart

Slide show available on <https://www.unols.org/event/meeting/dessc-2021-spring-meeting>

I was at this debrief, so I can answer any questions.

Adam Soule – I have been involved with SeaLog for a long while and would like to know what was considered inefficient with that system.

Jeff Seewald – I don't remember anything specific. I think they just thought it more efficient to write things down.

Dan Fornari – I plan to talk to them about SeaLog. It is crucially important and there are things falling short. I look forward to having those discussion.

NDSF Operator Report and Facility Update

Introductory Remarks and Announcements – Rob Munier/WHOI

Slide show available on <https://www.unols.org/event/meeting/dessc-2021-spring-meeting>

- I think it is important to acknowledge the sacrifices everyone has made because of COVID, especially for our teams.
- Converging on this great moment when these projects will be completed.
- Have a new ship's captain for the ATLANTIS Derrick Armstrong.
- New Chief Scientist for Deep Submergence, Anna Michel.
 - Anna Michel words of introduction

Upgrades to NDSF Vehicles: Sentry and Jason – Andy Bowen/WHOI

Slide show available on <https://www.unols.org/event/meeting/dessc-2021-spring-meeting>

- Kerry touched on the challenge of COVID in sustaining operations.
- NDSF operates differently than ships. Crew changes cruise to cruise.
- Proud of team for going above and beyond.

Status of Alvin Overhaul – Bruce Strickrott/WHOI

Slide show available on <https://www.unols.org/event/meeting/dessc-2021-spring-meeting>

- Introducing new expedition leader: Randy Holt
 - Randy Holt – Thanks to all the presenters so far. Really enjoying this.

Changes to Data Management in NDSF – Vicki Ferrini/ LDEO & Tina Haskins/WHOI

Slide show available on <https://www.unols.org/event/meeting/dessc-2021-spring-meeting>

Questions:

Anna-Louisa – What is the long-term plan?

Vicki – We are working on the long-term plan. We are limited by human resources. Many of the people we need to work with are going to see. Hopefully we will see substantive changes this year.

Ross Turner-Parnell – very excited by this. I think it will provide lots of new science.

Brian Midson – Will either of you be here tomorrow for the side scan discussion?

Vicki and Tina will both be there.

Anna- Louisa – What do you think the AI role will be in the future.

Vicki – The first thing that comes to mind is bottom photos.

Scott white – Is a single model for the data system s in the early goals of this project?

Tina – Yes this is one of our main goals.

NDSF Imagery Training – Andy Bowen/WHOI

Slide show available on <https://www.unols.org/event/meeting/dessc-2021-spring-meeting>

- The key thing we are trying to do is draw in a more centralized approach to data. The efficacies and opportunities that creates for us are significant.
- Initiated an internal operator’s workshop this winter.
 - Brought in Evan Kovacs to lead a workshop. (<https://marineimagingtech.com/>)
 - Broke it into two days – one was nuts and bolts and one was more compositional
 - We will have training videos that we can share with folks in the operations team and checklist that will be part of the legacy of this effort.

NDSF Imagery – Dan Fornari/WHOI

Slide show available on <https://we.tl/t-c3Nn8q5kcU>

Expanded bandwidth was a great success.

- Jason team did a great job.
- A lot of use for fixed focus cameras.

Anna-Louise – What are you asking from us? Do you want to make it an asset?

Dan – Good question. I think maximizing our data collection is a good thing. Different cameras with different perspective are a bonus. If you must focus the camera all the time is difficult. The fixed focus cameras can facilitate this.

Maximize and improve imagery

MISO facility has funded these cameras and are available. Need to figure out how to best utilize so the community use them.

I am more than willing to work with anyone in NDSF or outside to see how they can best be used.

Scott White – Is the integration with Sentry new?

Dan – Yes, it is new. I had many cameras out at sea and the science party was interested. Did a great job of fitting it in. Made a system that worked quite well.

Andy Bowen – Would you say new science could be done, by upgrading the camera?

Dan – Yes, I very much think so. Sentry is an ideal platform to do this with.

Ross Parnell-Turner – We can start to analyze the images in a much for data analyses way.

Andy Bowen – What about these cameras makes them better.

Dan – Lighting and resolution. If we could get the strobe light working properly, we could use it for video.

David Caress – Have you given any thought to doing a stereo pair?

Dan – I have not gotten into it. I did calibrate them all in a tank. You could easily arrange these cameras so you could get stereo out of them.

David Caress – I just think there is a question if it is a better to have a calibrated stereo pair or if you can get the pose of the camera good enough.

ROV Deployment and Operations Updates and Highlights

ROV Ropus – Keith Tamburri/Canadian Scientific Submersible Facility

Slide show available on <https://www.unols.org/event/meeting/dessc-2021-spring-meeting>

- Many delays in shipping and our system is still in New Zealand.
- Have two jobs scheduled for the end of this year in the Indian Ocean. Trying to get our system back in time.

Brian Midson – What is your forward-looking operations schedule look like?

Keith Tamburri – Once we get it out of New Zealand, we will send our system to Korea. From Korea we can go to our next jobs. Then our missions in the Indian Ocean will be finished at the beginning of 2022.

Doug Bancroft – We have interest from Canada on both coast for academic science, but we have no contracts in place and no funding in place.

Keith Tamburri – The first person who comes to us with a down payment is the person who gets to use the system.

Unfinished Business

Brian Midson – We had ROV Odysseus planning to deploy some OBS but that didn't not work out.

Anne Louise – Recommend we end for today. Tomorrow Bruce Strickott will walk around the hanger and show us in real time what is going on with the Alvin upgrades.

Day Two

Anna-Louise Reysenbach	Robert Sparrock	Alice Doyle	Brandi Murphy
Andrew D Bowen	Amy Baco-Taylor	Daniel Fornari	Keith Tamburri
Brian Midson	Brett Freiburger	Hayley Drennon	Pam Clark
Jyun-Nai Wu	Tina Haskins	Fujii	Roxanne Beinart
Andrew Thurber	Leila Hamdan	Anthony Tarantino	Randy Holt
Adam Soule	Jeff Seewald	Maurice Tivey	Anna Michel
Ben Tradd	Bob Houtman	Timothy Joyce	Vicki Ferrini
Douglas Bancroft	Adrienne Copeland	Dorsey	Kerry Strom
Amanda Demopoulos	Brian Glazer	Kimberly Galvez	William Strickrott
David Caress	Kevin Johnson	Aurora Elmore	Rachel Medley
Dwight Coleman	Peter Ogilvy	Scott White	Ross Parnell-Turner
Genevieve Fisher	Rob Munier	Steven Hovan	Stefano Suman
Tim Schnoor	Pete Girguis	Christopher Taylor	Audrey Mickle
Bruce Strickrott			

Participants –

DeSSC Activity Report and Broader Impacts

New User Planning – Brian Glazer/UH & Dorsey Wanless/Boise State

Disappointed we couldn't do the New User program via Zoom. Going to do it in Ocean Sciences in Hawaii

- possible site visit
- Blank late - open to ideas
- Dorsey - alternate bw AGU & Ocean sciences

Brian Midson - supports coupling the New User with the DeSSC Meeting

A-L - create an online component to have a greater reach?

Adam Soule - OEI and OET will be working out of Hawaii too

Brian Glazer - Can we host the meeting on a ship?

Ocean Sciences: 27Feb - 4Mar

Rachel Medley - NOAA Federal - interested in NOAA having a part in this. HOping to leverage their connections with DeSSC to link the communities and open possibilities to the new users.

Alice - Allison Fundis is also interested in helping out!

[User Skills Workshop: Imagery](#) – Anna-Louise Reysenbach/PSU & Andrew Thurber/OSU
2ea ½ day workshops, about a week apart. A bit less technical than NDSF and more focused on what you want to achieve in your image/video - once you do this, what do you need to think about as far as lighting, composition, technical stuff.

Hoping to do this in the fall

Will also have someone discuss the roles of the Scientists in the imagery process v. the roles of the vehicle operators

Could/should bring in the information about the fixed focus cameras

Dan Fornari - Great idea! Presentation that NDSF teammembers have with Evan were good. Were these recorded? YES - Anna-Louise had a look at these. Good

Good thinking how to distill to focus on science needs. Both Alvin and Jason could do for a serious upgrade in lightening and need to rethink placement of lights as opposed to the cameras. We should be a discussion about this within the groups - in order to make improvements. Need modifications to where you can mount lights. Should think further - where could we use lights for other science operations

Jeff Seewald - want to create a video as an outcome - so if folks

Adam - this video will be very important

Andrew - also a short cheat sheet to highlight the fundamental stuff.

APD - GET Mal Callahan's cheat sheet.

[Update on Abyss workshops and perspectives Paper](#) – Jeff

Marlow/ BU & Anna-Louise Reysenbach/PSU

Over 200 unique folks attended the workshops

The recorded talks are really good.

PUT WEBSITE HERE

Working on the paper

Adam - there was an organizing committee - Adam, Anna-Louise, Jeff Marlow, Tim Shank

This paper will be a great way to shine a light on Alvin and science in the abyss.

Held an extra credit workshop - DEI - exciting and need to think about how we can apply some of the lessons learned

Emerging Technologies and Other Activities

Waveglider Update – Andy Bowen/WHOI

Waveglider is a tool, not necessarily a “vehicle”, which extends the vehicle’s footprint. Been used with some success and some failure. This is a learning experience with new technology

This is good for parallel ops - so you can decouple the vehicle ops from the ship so it can do other operations.

Would like DeSSC’s backing on purchasing this as a tool to the facility.

DeSSC needs to make a clear statement with regards to the desire and

Jeff Seewald - NDSF is putting all the information which DeSSC will be need to discuss and write a letter of recommendation.

ALVIN Science Verification Expedition – Adam Soule/URI-OECI

There is an organizing team -

Rosa Leon-Zayas , Dorsey, Tim, Jeff, Anna-Louise Reysenbach , Adam Soule

Test the new systems or those that have been out of service. Als

Goals

- Give some first-time experience
- Create Documentation
- Promote diversity in Deep Sea Science
- Opportunistic Science

106 completed applications -

26 exp

XX New Uesrs

10 Other

Review process is underway. Want to select a # of participants to at-sea crew will be bw 22-26.

Will depend on COVID.

Divide at-sea work equally amongst the experienced users and new users. Will reserve spots for representatives from Puerto Rico and Cayman

Going to Puerto Rico Trench and mid-cayman spreading center

High Temp hydrothermal and then sediments and outcrops.

Numer of systems to be tested. - see slide

FULL OCEAN depth lander - free-falls - uses this information on EDNA sampling, acoustics, could give allow samples from deeper than where Alvin will go. DAP? See slide

Connection bw abyssal and hadal environment

HOpe to have no limits on the on-shore portion although need to keep the #s in mind in post-cruise dives.

Will do a separate announcement on participating remotely.

DEI-Andy Bowen/WHOI & Others

See slides -

Main takeaway - the facility is a tool that has the potential to be a valuable tool to recruit the next generation of doers. Can use the facility if proceed accordingly to reflect the diversity in the user community.

Micki Barboni is working with the NDSF team to pull this together. They have found themselves deficient in training, not reaching out as we should.

ROxanne - how will NDSF work with the new WHOI DEI person -
We hope to be ahead of the curve on this.

Rob Munier - There has been a lot of focus on the academic side. Nataliee Mavarez, at WHOI, is also focussing on the operations side. She will be working with NDSF and Marine Ops and hopes this could be

Roxanne Beinardt - The WHOI PEP program is a great resource. They have been very successful bringing in underrepresented participants.

Data Initiative – Brett Freiburger - WHOI

- Came across preservation issues with a lot of the historic ALVIN video. Got a grant to try to better preserve

- 16mm and 8mm film reel.
- First part will take a year and will go up to Dive 1000
- 10s of thousands of different formats of magnetic tape.

Alvin Dive 3571 video - from Jun 2000 - multi-year preservation

Vicki - we are working on some old videos and we should get together to make sure we are not overlapping and can learn from each other.

Brian Midson - WHOI reporting on income earned from the archive. It was agreed that WHOI could retain copyright as long as the income - attribution, copyright income, user would be contacted.

Dan Fornari - normally report this out at this meeting. It is more like a few thousand. Key thing is to make due notice as to who funded, which PIs, etc. Recent cruises with lots of content going to social media how do we appropriately give the right credit - talking with WHOI Legal, WHOI media to try to sort this out.

Andrew Thurber - will this archive be available to the public via a portal?

They are in talks with the WHOI media folks - some sort of video asset management system

Andrew - would be great if it is easier accessible

Will the format it is being formatted to, will it be accessible to cooperator with asset management and AI capabilities.

Seems that there is more interest in these videos now that they are getting digitized.

[Sentry Sidescan Sonar Data Processing Support](#) – Dan Fornari/WHOI

Can we figure out how sidescan data can be more processed post-cruise?

Parnell - great opportunity to use images, multibeam and sidescan to deal with

Use Machine Learning to

David Caress -

You are using the Chesapeake software?

- does it do what you are looking for?
- is it outputting sidescan that you can be put on the sea-floor?

What would be good to put into the archives?

Key to lay this out over the sea-floor. - then take that data that is laid out on the seafloor and mosaic this.

Sentry doesn't have time to do this.

Current way of archiving is not great.

- David, Scott, Anna-Louise talk about this

Vicki - acquiring data is what we do. We should think about precedent. Not to think of the rational boundary bw the NDSF and science.

Machine-learning/Artificial Intelligence Centers: Opportunities for the Oceanographic Community – Adam Soule/URI-OECI

Watch Adam's video again. **ACTION ITEM for committee or people to look into this.**

Andrew - is this an RCN? A workshop request? We are doing this at OSU. Going there in microbial research.

Leila - a lot of us are doing this on own but not all that well. Would be great if we could work together.

Adam - talked with Kandace Major - will these AI Centers tie into infrastructure boom? Will GEO or OCE already have efforts going in this direction?

Tim Schnoor - ONR is investing significantly in these areas in general -

Open Discussion Moderated by Anna-Louise Reysenbach/PSU and Jeff Seewald/WHOI

- Strategies for optimization of NDSF vehicle utilization/boot camps
- COVID lessons learned
- Other

Things you think DeSSC should be doing to

APD REach out to Roxanne, Leila - what more can DeSSC do?

Other Business/Items of Interest

- Fixed Focus Cameras -

David Caress - The fixed focus cameras are GREAT but they are too labor intensive for the average user. This sounds like an engineering problem. Is there a way to make these cameras less labor intensive?

ACTION ITEM: David Caress will summarize the problem for future discussion.

- Sidescan Sonar Data Processing

David Caress - the data is collected and there are workflows/codes that can produce some first flow mosaics. The ultimate production is mosaics. Conclusion:

- NDSF could easily do a bit better job doing some real-time processing
- It is a big job to do high-end processing and it is not clear whose job this is. If it is like the vessel based multibeam, there are specialists to do this sort of high-end processing.

ACTION ITEM: David Caress will summarize the problem for future discussion.