

**Ocean Observatories Initiative Facility Board (OOIFB) &
Data Dissemination and Cyber Infrastructure (DDCI) Committee Meetings
National Science Foundation, Conference Room E3430
Alexandria, VA
Tuesday & Wednesday, November 12-13, 2019**

Meeting Minutes

Meeting Appendices and Presentations:

- I. [Meeting Participant List](#)
- II. [Update from OOI Program Management Office](#)
- III. [Pioneer & Global Arrays Update](#)
- IV. [Endurance Array Update](#)
- V. [Cabled Array Update](#)
- VI. [CI and Data Delivery Updates from OOI Data Delivery Manager](#)
- VII. [BOEM Report](#)
- VIII. [WHOI MIO Data and QA/QC Activities](#)
- IX. [OSU MIO Data and QA/QC Activities](#)
- X. [UW MIO Data and QA/QC Activities](#)
- XI. [OOI Community Engagement Plans for Program Year 2 – OOI PMO](#)
- XII. [OOIFB Community Engagement Recommendations](#)
- XIII. [OOIFB Town Halls & OOI Booth Plans](#)
- XIV. [Science Use of OOI – OOI PMO 2.0](#)
- XV. [ONC User Metrics](#)
- XVI. [NSF Supported OOI Education Programs](#)
- XVII. [OOI Science Plan](#)
- XVIII. [OOIFB action item review](#)
- XIX. [OOIFB Membership](#)

New and Open Action Items

New Action Items:

- Action OOIFB-2019-7: Host a Community Workshop focused on the North East Pacific OOI Arrays:
 - The venue could be Portland, OR in Spring 2020.
 - Organizers could include the OOI RCA and Endurance PIs, ONC, OOIFB, and Early Career Scientists.
 - Provide a forum to facilitate science collaborations and identify strategies for engaging future users of OOI.
 - New features of the OOI data delivery system could be presented.

- Action OOIFB-2019-8: OOIFB Call for Nomination – Put out a call nominations to fill one open position on the OOIFB. The call can be announced in winter/spring with the appointment confirmed before the spring OOIFB meeting.

2019 Open Action Items:

- Action OOIFB-2019-2: Future Annual Work Plan Feedback – OOIFB should provide feedback to NSF on useful format/content suggestions regarding the AWP for Program Year 3. Feedback should be submitted to NSF by December 31, 2019.
- Action OOIFB-2019-3: Host a Town Hall session for 2019 Fall AGU Meeting
 - AGU accepted the Town Hall and it is scheduled on Dec 9th at 6:15 pm
 - Announcement and call for Lightning Talks sent to the community and posted on Oct 16th.
- Action OOIFB-2019-4: Host a 2020 Ocean Sciences OOIFB Town Hall
 - OSM accepted the Town Hall – Scheduled on Thursday, Feb 20, 2020 at 12:45 – 1:45 pm
- Action OOIFB-2019-5: Provide recommendations regarding OOI community engagement needs.
 - Sarah Gille, Jim McDonnell, and Deb Kelley volunteered to draft a task statement for the working group. They held a web conference on August 14th to discuss the task statement.
 - Questions and addition information request sent to NSF on August 16th.
 - Oct 2nd – Web conference was held and the task statement was revised. They will now provide recommendations regarding OOI community engagement needs.
 - Recommendations presented to OOIFB during Nov 2019 meeting.
- Action OOIFB-2019-6: Con Ops Feedback – OOIFB is invited to provide feedback to NSF on the OOI Concept of Operations document. Feedback should be submitted to NSF by December 31, 2019.

2018 Open Action Items:

- OOIFB-2018-9 – Draft a Science Plan/White Paper.
 - Discussed during May 2019 OOIFB Meeting
 - Revisited during the Nov 2019 OOIFB Meeting

2017 Open Action Items:

- Action: OOIFB- 2017-8 – Identify strategies for collecting OOI User Metrics.
 - Discussed during Oct 2018 OOIFB/DDCI meeting.
 - Metrics reviewed by PMO and discussed by NSF and OOIFB during May 2019 meeting.
 - User Metrics discussed during the November 2019 OOIFB meeting with a presentation on ONC metrics.

Day 1, Tuesday, November 12: OOIFB & DDCI Meeting

Welcome, Introductions & Review agenda – Kendra Daly opened the joint meeting of the OOIFB and the DDCI Committee at 8:30 am on November 12, 2019. Participants introduced themselves. The participant list is included as [Appendix I](#).

Kendra reviewed the meeting agenda and the upcoming deadlines of interest to OOIFB and DDCI Committee:

- The DDCI report is due to NSF on December 1, 2019.
- OOIFB Feedback on the OOI ConOps and Future Annual Work Plans is due to NSF by December 31, 2019.
- NSF will submit material for NSF's review of OOI in late Jan/early Feb 2020.

Welcome and updates by NSF – Lisa Clough welcomed everyone to NSF and reported on the following activities:

- An NSF panel was held in October at Woods Hole Oceanographic Institution. The review was focused on data deliver, cyber infrastructure, and community engagement. The panel report was just submitted to NSF. NSF anticipates that they will share it with the Facility Board (FB) after they have had a chance to discuss it with John Trowbridge.
- NSF appreciates all the hard work that the DDCI Committee is doing. Bob Houtman commented that a lot of really great work has gone on by all parties.
- Lisa Clough reported that there is an early career scientist group that is self-motivated to use OOI data and promote networking within the community.
- Terry Quinn welcomed the meeting participants. He encouraged all to think about the investments that NSF has made into infrastructure and science and to think about the discoveries that are possible. We should also have aspirational goals. The discoveries elevate the value of NSF's investments.

Update from OOI Program Office and MIOs

OOI 2.0 PMO - John Trowbridge (WHOI) provided the OOI Program Management Office (PMO) update. His slides are included as [Appendix II](#).

John reviewed the OOI system components. He provided a review of the system components including CI and data delivery. There are about 75 platforms and 770 science instruments in operation. Approximately 11 TB of data were delivered last quarter. The annual budget is \$44m.

John presented the OOI organization chart. The OOI Community Engagement position is still open. The individual selected for the position recently declined the job offer.

John presented the highlights of Program Year 1 (PY1) activities. Compliance, marine operations, DDCI, and community engagement were reported on. They hope that NSF's budget

will receive the full budget request of \$44M. However, a de-scope plan was developed by OOI PMO and submitted to NSF.

John reported on the Science Impact Metrics (Program inception to date). There have been 112 peer-reviewed OOI-related journal publications with 942 Web of Science citations. 68 NSF awards to 56 lead PIs at 29 institutions totaling \$47.8m for use of OOI assets.

In PY2, OOI will continue refurbishment and deployment and recovery cruises by the Mission Implementing Organizations (MIOs). Axiom has been contracted to develop a new user interface. PMO Community Engagement activities will include coordination of the OOI website redesign.

See John's slides for full details about the PMO activities.

Discussion:

- Annette – Is there an update on the status of the OOI New website? John - They have engaged Trapeze. They have slowed the website redesign down so that it could be better meshed with Axiom's user data portal development. They will have an outline for the new website and there will be opportunities for feedback.
- Tom Gulbransen - Are there things that OOI PMO is not doing because of budget constraints. John Trowbridge - They are really trying to simply manage expectations.
- Kendra Daly inquired into the Glider review. Will it be decided not to go forward with glider profilers?
 - John T - They will look at the full mix of systems and will examine the science value of the data provided as well as the performance of the system. They might de-scope.
 - Ed Dever added that the gliders are aging. Teledyne-Webb has had some service issues. Teledyne has a new employee who is good and they are seeing improvements. There are a lot of profiler devices across the system. Some are working well and others are not. There may not be a one-size fit all solution.
 - Lisa - There are also budget impacts that might influence de-scope decisions.
 - Bob Houtman - Performance of systems is also a factor.
 - Kendra commented that she hopes the profilers can be saved. They are state of the art.

Pioneer & Global Arrays – Al Plueddemann (WHOI) provided the report on the Pioneer and Global Arrays. His slides are included as [Appendix III](#).

- Al began the report by reviewing the CGSN Operations Team. They are looking to reorganize a bit and changes are shown in red.
- Pioneer's status was reported with a matrix illustrating what systems are operational. There are 10 moorings out for the winter with excellent performance after the fall mooring turn.
- Getting gliders into the field continues to be a challenge, currently at 1 of 5 baseline gliders operational. There is a glider turn scheduled for December that should add three more.

- The Southern Ocean Array will not be redeployed.
- At Irminger, there is low transmission percent due to both Fleet Broadband telemetry systems failing. There has been no science data transmitted (automatically) over Iridium, only engineering/status.
- The instruments and data collected are much higher because the status info indicates most are functional. They are being powered by the mooring, or on batteries.
- AI reported that there is some good news regarding the gliders. He is optimistic that they can work with the vendor.
- AI presented a Platforms and Instruments chart. It shows a performance summary over the last 6 months.
 - Downward spikes in the Surface Mooring (SM) platform are due to controlled “brown-outs” by the MIO to save power.
 - The PM Platform jumps up from 80% to 100% at Pioneer mooring turn.
 - The SM Instruments are relatively steady at around 80% and bump up at the Irminger and Pioneer turns.
 - The PM Instruments are highly steady at around 95% with a bump up at the Pioneer turn.
- AI reviewed technical developments. Highlights include Surface Mooring stretch hose increased reliability. The EM cable and end cap re-design has increased strength. There will be a power generation review in PY2.
- Challenges include:
 - Ship schedule and cost, which include schedule and port changes, impacts to shipping and labor, increased day rates. This has been a continued budget struggle.
 - Technical refresh is needed of aging instruments.
 - Glider delivery has not been on time.

AI reviewed the Community Engagement activities including:

- Outreach and Engagement in PY1
- CGSN related external Awards
- Cruise related activities in PY1.

Discussion:

- Tom G - The glider performance seems to be a limiting factor, do you keep track of the things that you could have done if the system had been operational. AI - He gets both sides. Sometimes he hears from people who expected a glider to be on station, but was not.

Next AI raised the topic of the Pioneer Array Relocation and suggested that now is the time to start acting on this.

OOI recommendations include:

- Pioneer should be relocated con-incident with the OOI 2.0 to 3.0 transition
- There should be an open competition based on scientific rationale (include the current location)
- Operation should remain under OOI 3.0 IO
- Timeline:
 - 2024 Spring - OOI 3.0 deploys Pioneer Array at new site.

- 2020 Fall - NSF call for proposals for new location
- 2021 Fall – Competition complete and location known
- 2023 Spring - recover current Pioneer Array
- Questions to be resolved:
 - How to provide clear separation between MIOs and proposal process?
 - What materials do PMO/MIOs need to provide for the proposal call?
 - Is this best done as an RFA call, or an RFP?
 - What support is provided to the winning PI team?
 - What level of engagement does the winning PI team have with the operator?
 - Should we be announcing the plan at Ocean Sciences in February 2020?

Al strongly suggests that the OSM 2020 is the place to announce the Pioneer Array relocation completion. They need help from NSF and OOIFB on how to address this.

Discussion:

- Tom G - What is the risk management for this?
- Al P - By getting this decision point early, the risk would be reduced.
- Lisa Clough - The 2.0 award is for 5 years with another 5 year possible.
- Lisa Clough - Is this a good idea? Is it the time to relocate Pioneer? NSF welcomes ideas. Pioneer would stay with the MIO.
- Ruoying He - It would generate excitement and provides a great opportunity.
- John T - We might want to do assimilation observational experiments.
- Larry Atkinson - We don't want to lose the skillset that we have at WHOI. There are a lot of assets that are becoming more dependent on Pioneer. Could sites in addition to the current Pioneer location be considered?
- Al P - WHOI sought a cost neutral solution by planning the relocation so that systems would be off line during regular planned turn-arounds. Larry's suggestion is not cost neutral.
- Ruoying He - Would NSF accept funding from other agencies? They could leverage other agencies.
- Lisa cautioned that NSF won't increase above the \$44M budget and there might be budget reductions.

Endurance Array - Ed Dever (OSU) provided the report. His slides are included as [Appendix IV](#).

- The status of the Endurance Array Platform was provided.
 - Digital still cameras were not redeployed. The vendor sold off that division. The new vendor is not servicing them. They tried to service them in house, but not very successful.
 - The zooplankton sonars have pressure housing problems.
- Endurance 12 Mooring Status traffic light matrix was reviewed. There should be some additional yellow blocks.
- Endurance Array Glider Coverage - Since May 2019 meeting ten gliders have been deployed and 3 are still deployed.
- Ed reviewed the community engagement activity:
 - Participation in regional and national meetings.
 - Increasing OOI data visibility and use
 - Outreach to graduate students

- Endurance engages with the UNOLS cruise volunteer program and selects students interested in the OOI data. They try to pick individuals from smaller institutions.

Discussion:

- Kendra - How are Python scripts available? Ed - They are publicly available through GitHub; however, they want to vet them more. Chris Wingard - They would like to consolidate all of the GitHub projects so that can be accessible via the OOI website.

Break

Regional Cabled Array – Deb Kelley (UW) provided the update. Her slides are included as [Appendix V](#). A lot of information was presented and the slides should be referred to for details. Information and some highlights included the following:

- A bar chart of the RCA Instrument/Infrastructure Status was presented. The chart was generated using RCA Blue Ocean.
- Plots of the deployed M2M Real-Time Monitoring were displayed.
- The Axial base deep profiler moorings has been fully operational for 17 months. It transits 2 times/day
- RCA Community Engagement activities were reviewed. External PI proposals dealt with 16 proposal/awards:
 - Four included existing awards
 - There were 4 new awards funded
 - 3 not funded
 - 3 pending (1 early career) - 2 on ship schedule
 - 2 pre-proposals
- Since 2016, there have been 50 awards and subawards.
- In 2019, RCA O&M cruises included external funding for instruments from NSF, NASA, Germany, and ONR.
- The RCA-OOI- UW education efforts include the VISIONS program. 160 undergraduate and graduate students have participated with 13 on VISIONS 19.
- Deb provided information on the Emerging LiveOcean and RCA Collaboration.

Discussion:

- Tim Crone - is there any collaboration between InterOcean and the official OOI site? Deb - No, the RCA team took it on themselves using UW funds. The Rutgers workshops have been successful. It is hard to create a portal that works for everyone. The undergrads might not use Python. They are geared to making a portal that works for the undergrads. They mostly use M2M. The Axiom effort is very good, but perhaps not as applicable for education purposes.
- Tim - There are a lot of groups working on their own portals.
- Orest - RCA still uses the OOI data, but we repackage it to make it more useable for more groups.
- Deb - The important thing that the data comes out of the OOI portal.
- Tom G - Have you tried to create YouTube videos? Deb - they have done some of that. They have an author who is writing a book.

CI and Data Delivery Updates from OOI Program Office – Jeff Glatstein, OOI Data Delivery Manager, provided the report via WebEx. His slides are included as [Appendix VI](#).

- OOI 2.0 CI achievements since last OOIFB meeting include the following:
 - Quality
 - QC proof of concept for gross range test
 - Adoption/implementation of QARTOD code set
 - Migration of ADCP bin depth fix
 - Stability
 - Email of ingestion start, completion and error
 - Implementation of Nagios monitoring software
 - Implementation of Grafana system metrics tracking - if they see a slow down, they can check to see if there was a slow down in the previous week to track patterns.
 - Build-out of UAT system as mirror of production typography
 - Data - Added time range filter to ingest process (data replay) -
 - Metrics
 - Number of ingestions or data requests in queue
 - Number of particles (i.e. lines of data) entering the system on a 30 second interval
 - Tracking of Data Portal requests, actual time to service and size
 - Tracking of synchronous data requests
 - Tableau Beta
 - Redmine ticket metrics - they are starting to see the results of this.
 - Data request trending (Alpha)
 - User Experience
 - M2M curl and Python examples posted on plotting page
 - Changed default plot style, time range and preferred timestamp
- CI Availability is 99.999%. The system is operating at 20%; this is good for future expansion.
- OOI 2.0 Open Ticket Trend by Month - They have made a lot of progress in reducing the count. They can now address the meaningful issues.
- OOI 2.0 Redmine Ticket Breakdown – A chart showing the closed and created tickets by month was displayed. It represents their operational burden. They need to know this for future efforts.
 - Richard Dewey - what happened in June? Jeff - they moved a lot of the tickets into the system
- Jeff reviewed the OOI 2.0 Analysis of Alternatives exercise:
 - The process started on 1/19 and completed in 6/19
 - Evaluation team: There was one voting member from each IO, PMO, and DDCI was represented.
 - They set scope, goals, roles, evaluation criteria and procedures and socialized with program Stakeholders.
 - Built list of alternatives (including OOI CI)
 - Researched alternatives and produced a short list.
 - They determined a list of alternatives to formally evaluate
 - There were 34 vendors, technologies and reference resources researched

- Six vendors were measured by evaluation matrix
- Seven were determined not appropriate for replacement but good technologies to watch for future integration
- 17 determined to not be a fit
- 3 have a neutral status
- OOI 2.0 Analysis of Alternatives – Findings:
 1. The current CI applications and architecture as they exist today are fixable. A full replacement is not required to achieve the OOI program’s mission.
 2. The areas most in need of attention in the current CI system are user experience (UX), Asset Management and Quality Assurance/Quality Control (QA/QC).
 3. There are very few existing end-to-end oceanographic data collection systems available that can come close to delivering 100% of the OOI requirements. Concentrating on an incremental, component-by-component “best of breed” approach, emulating, not re-inventing solutions would be more time and cost effective.
 4. In order to deliver a more modern interface and meet users’ needs for versioned data, OOI will need to move towards providing a pre-processed data source. This can be achieved with a hybrid model where calculate-on-demand is still available for those users who need it, but is not the primary means of data dissemination.
 5. UX is the area most impactful to the end user and perception of the program, and arguably the area needing most improvement.
- The AoA panel recommends that, “the current CI architecture is fixable and that it should be replaced only in part.”
 - Engage Axiom Data Science to re-architect the Data Portal UX– POC in PYI (Sep 2019), Project start PYII (Oct 2019)
 - Develop the Roundabout asset tracking solution into a full asset management application utilizing WHOI IS, internal and Axiom developers. The project started in PYII (Oct 2019). Roundabout is an asset management system that WHOI has developed.
 - Continue with current QA/QC plan to improve the understanding of OOI data quality and leverage QARTOD standards and community – Project start PYI (Jan 2019)
- OOI 2.0 CI PY II Work Plan will apply 2,200 hours to prioritized mission critical enhancements and bugs from the PI/PS reviewed ticket list.
- They engaged the Praetorian Group to assess the current OOI Cyber security. A penetration test and an analysis of current security policies were performed in September 2019.
- Jeff showed a diagram of the OOI 2.0 System Architecture as it now exists. It is as much to scale as possible. There are two raw data servers.
- Jeff discussed the OOI 2.0 Software Administration move to PMO, which was approved by NSF on 5/3/19. The benefits of the change are:
 - Closer developer relationship with production events for support
 - Appropriate privileges to support issue research
 - End to end oversight will reduce latency of diagnosis and solution implementation
 - Advantages that a matrixed organizations brings
- Jeff showed the OOI CI 2.0 Organization Chart:
 - There is one FTE with Raytheon
 - 1 FTE at Case

- The OOI 2.0 Change Management Process Overview flow chart was presented.
- OOI 2.0 Data Usage Management - Questions that can now be answered include:
 - How many rows of data are stored in the system?
 - How many instruments do we have data for?
 - How many data requests does the system service?
 - What is the most downloaded data set?
 - Who has submitted the most requests?
 - Who is downloading data from the system at this moment?
 - What is the status of the data ingestion process by user or stream?
- The OOI 2.0 CI Management Dashboard is in beta testing. If the cumulative total of data goes flat, they can check to see if there is a platform. The next step is to figure out how to set up alerts.
- OOI 2.0 Collaborations have included:
 - Attended Large Facility Work Shop
 - Attended CI Large Facility Work Shop
 - During their self-evaluation they interviewed OOI stakeholders, external service providers, sub-awardees, and users.
 - During the Analysis of Alternatives, they met with vendors inside and outside of oceanography and science.
 - The DDCI Membership has helped a lot.

Discussion:

- Kendra - What is the most downloaded data set? Jeff – It is on the Coastal Endurance. He doesn't recall the exact instrument stream.
- Rich Signell - What about use of the cloud for processing OOI? Are you viewing this as something in the future? Jeff – This is a tough question. The Cloud is the future. It will be a CI future. A hybrid cloud could be an approach for now. He has difficulty estimating Cloud Cost. They will need to do a cloud analysis.
- Orest - How are you on space? Jeff - they still have to do a raw data cleanup. Space issues aren't going to come up soon.
- Kendra - What are the issues of implementing QARTOD? They have been around a long time. Jeff - From the MIO point of view it is developing the parameters that the tests use. Then, how do you implement the QARTOD tests? There is no way to store the results. If they were to add this to their database, it would take up a lot of space.
 - Richard Dewey - The problem only gets harder with time. The longer the delay, the problem gets bigger and costlier. They need space for versioning. Jeff - They will have to purchase hardware for the Axiom effort. This isn't in the budget.
- Orest - what is the plan going forward regarding the MIOs in terms of Axiom? Will you have any input from the OOIFB during the development? Will it be internal? Jeff - He sees the users as being a big part of this. He sees initially the users will be on the MIO side. Lisa - This is a strong recommendation.

Introduction and Reports from Other Agencies:

NASA – Laura Lorenzoni provided a NASA update via WebEx.

NASA has leveraged the OOI data for their EXPORTS cruise in the Pacific. EXPORTS is looking at how carbon is transferred to the ocean. There will be a Phase II. There are two campaigns, one in the North Pacific and one in the North Atlantic.

During the North Pacific campaign, NASA went on the *Sally Ride* during the OOI service cruise and deployed an EXPORTS glider. On the actual EXPORT cruise, they deployed OOI instruments. The OOI glider has to maintain its role, so it could not be diverted for EXPORTS. The NASA glider complemented the OOI glider. One of the reasons NASA chose Station P was because of its long data series. They are probably going to use surface mooring data from OOI. This will be part of the Phase II. The data they received is very good.

Discussion:

- In 2020, NASA will go to the North Atlantic, but it won't be near Irminger. They wanted to stay further south.
- Lisa Clough commented that there are also NASA astrobiology efforts, such as the INVADER program.
- Lisa thanked Laura for making time to participate in the meeting. This is the first time that other agencies have participated.

BOEM – Guillermo Auad provided the provided the BIEM report. His slides are included as [Appendix VII](#). BOEM hasn't been involved with OOI yet, but they are interested.

The Mission of the Bureau of Ocean Energy Management is to manage development of U.S. Outer Continental Shelf energy and mineral resources in an environmentally and economically responsible way. BOEM's geographical jurisdiction is the outer continental shelf.

Guillermo provided some examples of BOEM projects:

- Arctic: MARES - 2019 Excellence in Partnering Award
- Atlantic - They ADEON project.
- Pacific - Marine Biodiversity Observation Network. This won the NOPP expertise in partnering award.
- Gulf of Mexico - Loop Current Dynamics Study

He discussed what BOEM and the OOI team can do for each other?

- Pioneer Array data could help Inform BOEM's decisions on renewable energy.
- BOEM has been collecting observational data west of the Pioneer OOI array.
- Wind farms/turbines could be considered as observing platforms.
- Early involvement of BOEM when and if planning future arrays in the OCS.

Discussion:

- Orest – Are the wind farms cabled to the shore? Are there any sensors on the cables? Guillermo - Yes to shore. They have not instrumented the cable.
- Al P - Is there a sense of prioritizing the data types to BOEM? Guillermo - BOEM want to understand the impact of any structure that is installed in the system on the local

ecosystem. As an example, in Norway the wind farms were generating fog. They would like to understand and then mitigate problems if needed.

- John Trowbridge - What about sound issues? Guillermo - They have hired a marine acoustic expert. The concern is interruption in sound scapes.
- Deb Kelley - Are you interested in minerals such as gas hydrates. Guillermo - Yes they are concerned about anything that would interrupt the flow of these.

Lunch Break

Current MIO Data and QA/QC Activities/Priorities:

WHOI MIO - Sheri White provided the CGSN data report via WebEx. Her slides are included as [Appendix VIII](#).

The CGSN Data Team was presented. CGSN Data team responsibilities include:

- Asset Management:
 - Critical Metadata Review
 - Critical Metadata review processes
 - Critical metadata review status
 - At this point all of the data products have been reviewed
- Data ingestion process/availability for telemetered and recovered data
- Data QC
- Annotations and communications – They are working on processes for notifying the community about annotations.

Sheri presented the CGSN Accomplishments to data and the plans for the future (see slides)

Discussion:

- Richard Dewey- How is the data discoverable? How are the analyses entered afterwards? Sheri White: Analyses go into the Alfresco. CTD logs are also there. In the past, they user would have to go to Alfresco. Now the vendor analyses are posted. The information is put into the spreadsheet in a common format. The user still has to go into alfresco. They hope that in the future this will change. Richard Dewey: So discoverability is still to be determined.
- Tom Gulbransen: How is the naming convention working out? Al Plueddemann: The naming is still evolving. They try to find the popular approach among data groups.

Endurance Array Current Data Oregon State - Christopher Wingard gave the presentation. His slides are available as [Appendix IX](#).

They Endurance team coordinates with CGSN, so a lot of what Sheri White presented also applies to Endurance.

The Endurance Data Team was presented. Data team responsibilities include:

- Asset management (Critical Metadata review)

- Ingestion/Availability. Chris thanked Jeff's team for assistance with the telemetered ingests.
- Chris showed the Data QA/QC weekly workflow chart.
- Data QA/QC: Qartod. They participate in biweekly meetings. The workload is big, but not unmanageable.
- Data QA/QC tools – They are developing python and Matlab code to download OOI data from M2M system to facilitate data explorations.
- Chris provided Data QA/QC: Algorithm Updates. He explained the ADCP 3-beam solution. In the case of a failure of one of the 4 beams, the system will automatically switch to the 3-beam algorithm.
- Chris reviewed the near and long term plans (see slides).

University of Washington – RCA Data QA/QC Report - Orest Kawka gave the report. His slides are available as [Appendix X](#).

Orest provided an overview of:

- RCA Data QA/QC Prioritization for PY1
- RCA Instrument and Critical Metadata QA/QC workflow
- RCA PY1 priority was to carry out a historical critical metadata check. The audit results were:
 - Calibration Files:
 - 133 data-affecting modifications (98 missing files, 32 incorrect coefficients, 3 file renames)
 - “Data-affecting”: discrepancies < 7 significant figures, discrepancies to coefficients associated with active deployment instances, file dates overlapping active deployments
 - Deployment Files:
 - 14 data-affecting modifications
 - “Data-affecting”: discrepancies in asset IDs, deployment dates, location assignments

Orest reviewed the milestones achieved in PY1:

- Developed RCA data QA/QC workflow and processes/procedures for CrM
- Completed audit of RCA historical non-Tier 1 CrM
- Corrected/re-verified 95% of RCA historical CrM for 2014-2018
- Developed/implemented QC scripts to automate routine checks of CrM
- Created Shipboard Discrete Sample Summary template
- Created, uploaded, and verified 105 instrument updates for 2019 RCA Maintenance Cruise
- Created prototype GUI widget for user access to OOI CrM correction database
- Assumed responsibility for maintenance/monitoring of RCA Port Agents and Drivers

Orest explained the causes of missing streamed cabled data:

- Network outages
- Port Agent / Parser errors
- RCA or instrument offline

Resolution of missing streamed (cabled) data requires comparison of raw data archives with Cassandra database.

Orest reviewed the near-, mid- and long-term priorities at RCA (see slides).

Discussion:

- Richard Dewey - How were the discrepancies discovered? Orest - They reviewed instrument by instrument and compared it to GitHub. There were two sets of eyes and they also used the calibration sheets from the vendor. It is still a very manual process.
 - Al Plueddemann: Most of the time, these calibration are subtle. They are hard to find.
 - Christopher Wingard: They have learned from the vendors - trust, but verify.
- Deb Kelley: This is a good example of sharing amongst the IO data teams. There is a lot of cross communication.

DDCI Committee Draft Report to NSF - Tim Crone gave the overview of the DDCI draft report and recommendations. He thanked the DDCI committee members for all their contributions.

Tim provided an overview of the report structure/outline. The report acknowledges that the OOI data delivery system is a work in progress. The committee charge along with the committee activities are described. The report discusses data delivery systems, the community survey results, data delivery successes and issues, and recommendations.

Tim reviewed the draft report that is available to OOIFB and the DDCI committee on the Google Drive. The goal of the DDCI committee task was to evaluate the OOI data delivery and provide a report. The Committee started working on this evaluation over a year ago. They initiated bi-weekly web conferences, carried out a SWOT exercise, participated in the OOIFB Town Halls, conducted a community survey, and held a joint meeting with OOIFB in May 2019.

Tim led a discussion on the draft report. Since the report is still in draft form, the notes from the discussion that pertain to the draft report findings and recommendations are not included in these minutes.

Break

Discussion:

- Lisa Clough - NSF will work to getting the Survey data released. At the very least, we would like to be able to show some of the community survey data plots at Town Halls.
- Jim Potemra: It would be good to acknowledge the community survey data and thank the respondents.

Outreach and Engagement

OOI Community Engagement Plans for Program Year 2 – John Trowbridge presented the OOI PMO Community Engagement Plans for PY2. His slides are available as [Appendix XI](#).

Program Year II: PMO Community Engagement plans include:

- Coordinate website redesign
- Community Engagement Manager hire
- Social media strategy
- 2019 AGU Fall Meeting (support OOIFB Town Hall)
- 2020 Ocean Sciences Meeting
 - Co-Chair Session 85813, “Sustained Ocean Observing: From Events to Assessing Long-term Ecosystem Patterns”
 - OOI Booth
 - Support OOI/Early Career Town Hall
- NSF-sponsored Large Facilities Workshop (coordinate metrics & management sessions)
- Quarterly newsletter
- Metrics
- Brochures

John reviewed the engagement activities of each array.

- Regional Cabled Array PY2 Engagement
 - Extensive planning with PI’s regarding 5 externally-funded field programs next summer on RCA cruise – 2 others on ship schedule pending
 - RCA data continued to be incorporated in UW Tacoma and Seattle Ocean 100 classrooms reaching hundreds of students: NSF education proposal in process
 - Several local talks scheduled – community college, (ORCA – Ocean Research College Academy, Friends of Beaches 501C etc.), AGU 2019
 - West Sound STEM Network – Executive Committee; >18 School Districts in Washington
 - Formalize collaboration with UW-RCA, Grays Harbor College, and Quinault Indian school
 - Continue expansion of CAVA InteractiveOceans data portal – educational tools and extensive image/content gallery and community Python tools
 - VISIONS’20 - Anticipate ~25 students (Queens College NY and Citrus College included)
 - Continue/expand collaboration with P. McCready and LiveOceans re RCA data
- Endurance Engagement Goals for Project Year II
 - Webinars and seminars to regional institutions – work done in PY I gives a strong foundation for this.
 - Present time series data and discuss data quality – especially for bio-optical and chemical data
 - Publicize various data pathways for access (Data Portal pathways, NDBC, NANOOS, GOA-ON, Glider DAC)
 - Update potential users on OOI status and data delivery plans going forward
 - Continued expansion of data distribution (glider DAC, GOA-ON)
 - Strong presence at Ocean Sciences 2020
 - Four talks contributed plus potential lightning talks
 - Presence at OOI booth
 - Participation in OOIFB Town Hall
- CGSN PY 2 Goals – Following the PY-2 AWP
 - Support CE efforts undertaken by the PMO

- Continue Engagement with Researchers
 - Include CGSN Community Webinar
 - Continue cruise-related activities
 - Participate in Conferences and Workshops
 - Fall AGU, Ocean Sciences, MABPOM, MTS Buoy Workshop
 - Seminars at regional institutions
 - OOI PI or sponsored PIs
 - Public Outreach via talks, tours and other contributions
- CGSN PY 2 Aspirational Goals:
 - Infrastructure Descriptions - Conference or journal paper(s) based on material presented at Marine Technology Society Buoy Workshop
 - Best Practices - Contribute OOI documents to the UNESCO-IOOS Repository
 - Data Distribution - Follow EA lead for delivery of OOI data to: NDBC, NERACOOS, GOA-ON, IOOS Glider DAC, OceanSITES, DataONE

Discussion:

- Tom Gulbransen - Do you think that these modes of engagement are working? Is OOI okay with the pace that they are working at? Deb Kelley - Unless resources are tripled, nothing more can happen. We have really great things, but no way to get the message out. We want students to be ambassadors. It takes effort. They need material. They are trying to develop things that can expand usage base.
- Tom Gulbransen: The one-on-one interactions are very valuable as well.
- John Trowbridge: We are reaching UW, WHOI, OSU students, but we need students from other institutions.
- Ed Dever: We need to have the OOI data more discoverable and accessible.

Early Career Scientist Workshop - Kristen Yarincik provided the report via WebEx. She reported that following an early career OOI workshop that was held in 2018, a self-motivated early career group decided that they wanted to run another interdisciplinary workshop focused on OOI data. The group organized it with support from Consortium for Ocean Leadership (COL) and Kristen. The group includes Justin Stolp, Sophie Clayton, Brendan Phillips, and others. There were 23 participants at the workshop. They drafted a report, but it may not have been submitted yet. The group's specific goals are to:

- Continue learning about OOI - data, availability and science
- Training
- Provide mentorship.

The ECS group and formed three working groups. Activities have included:

- They submitted an EOS article and it was a call to action for open data.
- Created a GitHub repository
- Poster presented by Justin Stolp at OceanObs.
- Requested and approved for a Town Hall at OSM
- They are exploring a way to continue support for their early career effort.

They are a very motivated group of OOI scientists who want to move forward. Dax was at both of the early career workshops.

OOIFB Community Engagement Recommendations – Annette DeSilva reviewed the recommendations for OOI community engagement as prepared by OOIFB members (Sarah Gille, Deb Kelley & Jim O’Donnell). The slides are available as [Appendix XII](#).

The goal of this proposed OOI community engagement effort is to increase the science user base for OOI. There are currently three suggested recommendations:

1. Host an OOI Community Workshop(s) – OOI large community workshops were last held in 2016. These were effective in their ability to:
 - 1) Inform science users and potential users about the status of the OOI program
 - 2) Highlight the science that can be achieved using OOI data.
 - 3) Provide tutorials on how to optimally access OOI data.
 - 4) Provide a forum for community networking.
 - 5) Provide opportunities for the OOI program to receive direct feedback from the science user community.

The recommendation is to host a Community Workshop focused on the North East Pacific OOI Arrays. The venue could be Portland, OR in Spring 2020. Organizers could include the OOI RCA and Endurance PIs, OOIFB, and Early Career Scientists. The community workshop could provide a forum to facilitate science collaborations and identify strategies for engaging future users of OOI. The workshop will inform the oceanographic research community of the science capabilities of the Cabled Array, Endurance Coastal Array and the Station Papa Array. New features of the OOI data delivery system could be presented. Workshop participants will have the opportunity to provide feedback on their initial experiences in working with the OOI systems and data.

An additional workshop focused on the North Atlantic OOI Arrays could follow in late 2020 or in 2021.

2. OOIFB should provide suggestions for the OOI Booth at the Ocean Sciences Meeting – The OOI booth at the 2020 Ocean Sciences Meeting will provide an opportunity to showcase OOI’s capabilities and data delivery system. OOIFB requests the opportunity to provide suggestions for activities and materials in the booth that will promote community engagement of OOI.

3. Form an OOIFB Task Force on OOI Community Engagement Needs – In PY1, The OOI program prepared a Community Engagement Plan and in PY2 is beginning to implement the plan. As part of the Plan, a new Community Engagement position has been formed and will be filled in mid November 2019. In a separate activity, NSF conducted a panel review of OOI’s data deliver system and community engagement plan in October 2019. The panel’s report recommendations will be available in late 2019.

OOIFB recommends that a task force be formed in mid-2020 after results of the CEP activities are better understood and the NSF panel review recommendations are known. A subcommittee of OOIFB will prepare a task statement for the task force.

Discussion:

- Richard Dewey - He would be willing to participate in the workshop. ONC is working to reduce their carbon footprint. Regional people could attend the workshop, but the longer distance folks can call in.
- Deb Kelley - Should we engage the education community?
- Kendra Daly - Should we engage modelers?
- Ed Dever – He is unavailable from March 31st to April.
- Lisa Clough - Should we combine the OOIFB meeting with the Workshop to reduce the carbon footprint?
- Jim Potemra – To avoid the perception of an inside club of OOI institutions, would it be better if the workshop was organized through a science theme.
- Ed Dever: Broad science themes might work.
- Richard Dewey - He likes where this is going. You can match a science theme with the OOI. It could be an OOI sponsored theme.

OOIFB Town Halls & OOI Booth Plans:

OOIFB Town Halls – Annette DeSilva review the Town Hall agenda and plans for the Town Halls at 2019 Fall AGU and the 2020 Ocean Sciences Meeting. Her slides are included as [Appendix XIII](#).

The OOIFB Town Hall at 2019 Fall AGU Meeting:

- When: Monday, December 9th, 6:15-7:15 pm
- Where: Moscone West, Room 2007, L2 - San Francisco, CA
- So far we have one Lightning Talk - Bill Chadwick – Oregon State University: Axial Seamount
- We could use more Lightning Talks and they are requested by December 1.

The agenda for the town hall is as follows:

- 1815 Welcome, Introductions, Activity Update – OOIFB member (10 min)
- 1825 Updates from the National Science Foundation (5 min)
- 1835 Updates from the OOI Operator (10 min)
 - Advancements in data delivery and quality
 - One slide per IO on operational status to show high level of functionality.
- 1845 OOIFB’s Data Dissemination and Cyber Infrastructure Committee Year in Review –
Tim Crone, DDCI Chair (5 min)
- 1850 Community Lightning Presentations (20 min)
- 1910 Questions, Answers, and Discussion (5 min)
- 1915 End of Town Hall

Annette submitted an abstract for an OOIFB Town Hall at the 2020 Ocean Sciences Meeting. It was accepted and is scheduled as follows:

- Date and Time: Thursday, 20 February 2020 - 12:45 - 13:45
- Location: SDCC, 3, UL

In addition to the OOIFB Town Hall, there is an early career scientist town hall. Sophie Clayton shared a copy of the abstract with John Trowbridge and Annette DeSilva. Details about their town hall are as follows and their abstract is included in the slides:

- Town Hall Title: The Ocean Observatories Initiative: a catalyst for early-career, interdisciplinary research
- Date and Time: Tuesday, 18 February 2020: 12:45 - 13:45
- Location: SDCC, 9, UL
- Organizers: Sophie Clayton (ODU) & Justin Stopa (U. Hawaii)

Discuss plans for the OOI Booth at the 2020 Ocean Sciences Meeting – John Trowbridge reported that OOI has reserved a booth. Annette said that OOIFB would like the opportunity to provide suggestions for what can be included in the OOI booth. We will continue this discussion in the following weeks.

1700 Day-1 of the meeting was adjourned.

Day 2, Wednesday, November 13th: OOIFB Meeting

Continue Joint Meeting of the OOIFB and DDCI Committee - Kendra opened Day 2 of the meeting.

Revisit DDCI Committee Draft Report to NSF - Discussion on the DDCI Report continued including the report timeline. Since the report is in draft form, only comments regarding the timeline will be included below in the minutes.

Discussion:

- There has been an extension of the deadline to submit the report to NSF to December 20th.
- OOIFB comments should be submitted on the Google Drive report document (V3) via suggestion mode.
- OOIFB will need to endorse the report before submittal to NSF.
- There was discussion on how the survey results should be included in the report.
- Lisa suggested that the survey summary report be sent to NSF by December 1st along with a few slides with survey results that the DDCI committee would like to present at public venues. The survey report can also be included in the DDCI Committee report as an Appendix. This would allow it to be easily removed if needed.
- Tim Crone continued with review of the report recommendations.
- Lisa Clough - Feel free to provide context of the recommendations in terms of high, medium, long, near-term, etc.

DDCI Committee Future Activities - The OOIFB will hold this for discussion during their monthly phone meetings.

Assessment of science use of OOI and User Metrics - John Trowbridge provided the report for Science Use of OOI. His slides are available as [Appendix XIV](#).

John has spoken with NEON, ARGOS, and ONC about their metrics and how they are tracked.

John showed a matrix of the OOI Science Impact Metrics (see the slide). The totals are as follows:

- OOI-related Journal pubs = 112
- Journal Pubs using OOI Data = 58
- NSF Awards using OOI data or infrastructure = 69

Discussion:

- Kendra Daly - How do we identify papers, if the DOIs are not cited? John Trowbridge - Argos indicated that only about 40% use DOIs. The pubs are on the OOI website.
- NSF question - What institutions are represented? Deb Kelley: There is a diversity of institutions.
- Jim Potemra - Is this a big effort putting the metrics together? John T - It was a big effort. Deb Kelley - She had to review the pubs to determine if they actually used the OOI data.
- Al Plueddemann - He would like to see a curated approach for identifying OOI pubs.
- John Trowbridge - There doesn't seem to be a standard process.
- Lisa Clough - It would be good to see the OOI metric stats (with abstracts) every other year. It could be presented at the Ocean Sciences Meeting.

Ocean Network Canada (ONC) User Metrics - Richard Dewey provided a report on ONC user metrics. His slides are available as [Appendix XV](#). Richard began by saying that it is a messy, challenging job of tallying the metrics. Different groups want different types of metrics. ONC's core metrics boils down to peer reviewed papers.

The standard indicators for operations are user access, optimal use, and user satisfaction. For research and tech development the standard indicator is advancement of research. The benefits to Canada are training of highly qualified people and tech transfer. Facility-specific indicators are facility reliability, active collaborations, informing policy development, and indigenous community engagement.

ONC's tools for accessing user counts are

- Google Analytics
- Oceans 2.0 database searches
- Targeted Annual Survey

User satisfaction surveys are used. Questions are measured on 7-point scale via annual surveys sent to the scientific community. The results are reported to funding agency as aggregated percentages.

The metric for advancement of research is based on the number of peer-reviewed scientific contribution. Journal articles are a top metric. They don't count pubs that simply mentioned ONC. Peer reviewed conference proceedings must use OOI data.

ONC tally the number of highly qualified people (HQP). This is the number of HQP trained at the facility or who used data from the facility for their training.

ONC also looks at tech transfer; the aggregated total number of technical reports, patents, licenses, and spin-offs. They want to become indispensable to their federal government.

Next Richard shows charts of the metric statistics:

- Oceans 2.0 Data users by Category: Shows the users and downloads per day.
 - Data portal - 53%
 - Data dashboard users - these are sites where the data is offered up and doesn't even need to be downloaded. Shows specific data sets. - 23%
 - API users - 16.8%

Richard showed the peer-reviewed literature statistics for 2010-2019. These are data pubs per year. They are working to get 50 pubs per year and increase 10% a year.

Metrics about facility reliability, active collaborations, policy, and indigenous community engagement were also discussed.

In conclusions, metrics are important, but not easy.

Discussion:

- John Trowbridge - Will NSF do this same sort of metric evaluation? Lisa Clough - NSF is thinking about standardizing how large facilities are managed. They might highlight things that are good for all facilities. Bob Houtman - Looking across observatories, it is useful to have a set of common metrics. If it is possible to identify a set of common metrics, that would be valuable. This could be on an international level.
- Kendra Daly - Tracking these could be challenging.
- John Trowbridge - To ONC, how do you expand by 10%? Richard Dewey - ONC tries to be innovative to new science communities, as an example, the Neutrino Physics community. They are reaching out to see if they could use the ONC array. Papers are being written. They are now looking to make an observatory on the ONC.

OOI Education Programs - Lisa Rom provided a review of NSF supported OOI education programs from the past year and plans for the future. Her slides are available as [Appendix XVI](#).

Lisa reviewed the NSF education award, and the education website Development/Crosswalk to Textbook. In 2016 and 2017 they ran three workshops, and worked with faculty who teach undergrads.

In 2018 there were four disciplinary workshops for early career scientists.

OOI 1.5 Education Team was presented. Janice McDonnell from Rutgers University is a leader.

Four OOI Ocean Data Labs Workshops were held in 2019. Their goal is to reach additional faculty and put the lessons into the hands of the instructors. They have a website now, datalab.marine.rutgers.edu/. They are putting out mini grants to those who are developing course curriculum.

The challenge:

- OOI data access is no longer centralized
- Many more people are involved.

Goal: How best to support distributed efforts for educational development and use of OOI data?

Discussion:

- Deb Kelley - There are now two separate websites; there is one for education and one for OOI.
- Annette - For information related to OOI and OOI data, I think most people would go to the oceanobservatories.org website. Most people won't know to visit the Rutgers website. The two sites should be linked.
- Christopher Wingard and Ed Dever - It would be good for the education team to meet with the OOI team members for the latest information.
- Lisa Rom - She doesn't know how OOI and the education programs will be centralized.
- Deb Kelley - There is a need for a centralized place for educator tools. There should be an education portal. We need to give additional thought to this.
- Lisa Clough - We can send an example of a DCL to Annette for distribution to the OOIFB.
- Lisa Clough - NSF is in the business of funding proposals.
- Deb Kelley - Not sure if Janice is doing this, but a large education workshop would be good.
- Annette DeSilva - Just prior to this meeting Mary Jo Richardson forwarded an email about a Data Labs webinar series. This looked very interesting. It would be good to circulate these announcements to the broader OOI community.

This concludes the joint meeting of the OOIFB and DDCI Committee. The DDCI Committee left the room to meet separately to discuss the report. OOIFB stayed in the room and continued the meeting.

Break

OOI Science Plan - Kendra opened a discussion on a strategy for updating the OOI Science Plan. Slides can be seen in [Appendix XVII](#).

Lisa Clough remarked that NSF leaders regularly ask for an updated OOI Science Plan.

The 2007 Science Plan still has the applicable science questions, but the foldouts are no longer up to date. OOI now has science products. There are new features that need to be captured. Many areas are outdated in the 2007 Plan, particularly those describing the OOI system. There needs to be accuracy in an updated Plan.

Discussion:

- Ed Dever - Ocean Acidification is missing from the Plan. The expandability and potential of OOI is missing.
- Kendra Daly - The Plan is written in future tense.
- Ed Dever - Gliders and profilers were in an early state of development in 2007.
- Kendra Daly - The OOI system design needs to be updated. Maybe leave the traceability matrices out.
- Lisa Clough and Bob Houtman - The plan can be at a higher level. Don't update the Science Plan. Make a new 5-year OOI document. Close the door on the 2007 report. Lisa Clough - A 15-page document is sufficient.
- Kendra Daly - The science questions still work.
- Lisa Clough - The document can include education. Updating the 2007 Plan is too difficult. Simply, acknowledge the 2007 report.
- Ed Dever - Who is the audience? Lisa Clough - It is a high level document that can be shared with out leaders.
- Bob Houtman - Explain the value of OOI and how the community can use it.
- Ed Dever - Should we think about where we think we will be in 5 years.
- Bob Houtman - What are the science questions, and what is the value? We are not IOOS, we are OOI. There is always the question of why is there IOOS and an OOI. There is a lot of value in having a relatively short document describing the OOI and why it exists.
- Lisa Clough - We have intellectual merit and broader impacts.
- Kendra Daly - OOI was NSF's contribution to IOOS. We could highlight our exciting science.
- Bob Houtman - We want to avoid a direct comparison with IOOS.
- Kendra Daly - IOOS is for synthesis.
- Lisa Clough - A list of exciting science would be good.
- Lisa Clough - Should we rename the document and move away from "Plan"
- Al Plueddemann - We need to acknowledge that OOI is working.
- George Voulgaris: What he would like to see are the science objectives that have not been met. What can be achieved by OOI and what are OOI science opportunities available?
- Lisa Clough - Should there be a workshop or town hall? Will there be a community comment period?
- Bob Houtman - We can call the document, OOI Science Themes and Opportunities
- Deb Kelley - There are a lot of technology advances with sensors because they are being used more vigorously than before.
- Kendra Daly - Should we have a best practices section?
- John Trowbridge - Should the document map to the NSF Big Ideas? Lisa Clough: The NSF director leaves in March 2020, so there could be a change in direction.
- John Trowbridge - The OOI Program will not be the author. Lisa - correct.
- Lisa Clough - The document could look at: Here are the themes; here is where we are; network design; education; opportunities.

- Report Timeline - Lisa - We have up to a year to do this. Being able to say to the NSB that it is underway at the May meeting would be helpful.
- Brian Glazer suggested the title, "OOI 2.0: Selected case studies and opportunities."

OOI Annual Work Plan (AWP) Future Feedback - OOIFB has the opportunity to provide feedback on information that would be useful to include in future AWP. NSF requests feedback by December 31, 2019. Annette reported that a document has been started that compiles feedback that applies to future AWP. The document is in the Google Drive.

Discussion:

- John Trowbridge reviewed the AWP timeline and process for last year. OOI submitted the draft AWP to NSF on 4/15 and then OOIFB provided their feedback to NSF on May 31.
- Kendra Daly - Can OOIFB see the budget numbers? Lisa Clough - NSF has many panels and there is no way they can go down that route, even with the disclosure forms.
- Jim O'Donnell - In the past plan, there was a lot of vagueness in regard to cost. How do you deal with cost escalation? John Trowbridge - With escalating costs, they have to de-scope.
- Lisa Clough - Is there interest in having de-scope decisions? Yes.
- Ed Dever - There are some efficiencies that have reduced cost and therefore more funds were available for other activities.
- Paul Matthias - Any de-scope efforts needs to go through ECR process.
- Deborah Kelley - When OOI prepares the AWP, they don't know the cruise transit days. It is a big cost number that has to come out of somewhere.
- Annette - Will the OOI weekly and quarterly reports help the OOIFB better understand the AWP? Lisa Clough - OOIFB won't get the quarterly reports. The weekly status reports could help.
- Deborah Kelley - Should cost under-runs be part of the discussion? John Trowbridge - If the under-run is under 10% it is okay with NSF. The program likes to wait until the budget numbers are better known. He reviewed the process for applying under-runs. It is a 3-Step process. Step 3 is greater risk to the program.
- Jim O'Donnell - Why are there under-runs? Al - they can't have an over-run, so they are conservative in their cost estimates. They push risk out. How long can the existing infrastructure survive?
- Deborah Kelley - Her fear is that a catastrophic event comes through and wipes out the system. Lisa Clough - The government is self-insured and they will make the decision to replace or not.
- John Trowbridge - Going forward, they plan to include the level of detail in future AWP that is represented by AWP2-ver 2.

Lisa Clough remarked that the document in the Google Drive that summarized future AWP suggestions looks good. OOIFB can go with that document or add an overarching remark recognizing the revised final AWP that was submitted by the OOI PMO.

Lunch Break [working lunch]

OOI Concept of Operations Document - OOIFB has the opportunity to provide feedback on the OOI Con Ops document. NSF requests any feedback by December 31, 2019.

Discussion:

- Kendra Daly - She read it and it is useful to understand the document. She noticed that it makes a statement to use UNOLS staff and she is not sure what that is.

OOIFB Action Items-in-Progress - Annette reviewed the progress of OOIFB action items. Her slides are available as [Appendix XVIII](#). A summary of the open actions is also provided at the top of these minutes.

The 2017 action item regarding user metrics is still open

Discussion:

- Lisa Clough suggested that the OOIFB look at the ONC report and suggest anything that resonated with them.
- Jim O'Donnell: The ONC has different goals than OOI, so he would like to see us stick with the metrics that John T provided.
- Kendra - Tracking performance metrics could be useful.
- Bob – Metrics on both science and performance would be useful.
- Deb - you need to know some of this. It is useful to track how many users are hitting the site.
- Lisa – ONC's annual user survey was interesting. It would be an extra effort and cost. Jim O - Do it every other year perhaps. Lisa - Should we have DDCI carry out a survey every other year?
- Jim O - perhaps after implementing the DDCI recommendations, there could be another survey. This could be a task for the DDCI standing committee.
- Deb - IRIS tracks how many new users access the portal, how many repeat users there are, etc.
- Lisa - Lets not close this action. It can be revisited after the community engagement position is hired.
- Kendra - Can we get OOIs performance metrics?

Relocation of the Pioneer Array – There was discussion how to collect community feedback regarding relocation of the Pioneer Array.

- NSF could hold an Ideas lab where a group spends a week on this topic. There is a review team of about 30 and they come up with top location options. Other agencies that are interested could be involved.
- Bob Houtman – A timeline will be developed before moving forward.

OOIFB Other Business – Annette opened discussion on other OOIFB business. Her slide is included in [Appendix XIX](#).

- OOI Weekly Reports – Annette asked the OOIFB if they would like the reports emailed each week or simply posted on the OOIFB-only Google Drive. Brian Glazer recommended that

the report get posted to the Drive and then an email be sent to OOIFB with a link to the report.

- OOIFB Charter, Annex I – The Charter lists the name of the DDCI Committee as “Data Dissemination” and other documents list the committee name as “Data Delivery” or “Data distribution.” Is a name change for the committee needed?
Tim Crone proposed that this be tabled until we know more about the DDCI committee’s future role.
- Membership Review and Leadership Discussion:
 - Lisa Clough proposed that going forward the OOIFB should have a past-Chair position. Larry Atkinson accepted the Past Chair position.
 - OOIFB now needs a Chair-Elect and a Chair.
 - Kendra stated that she is willing to accept the nomination for OOIFB Chair.
 - Jim O - Continuity would be valuable.
 - Larry – Initially, Kendra was considered as the Chair-Elect.
 - Jim O - Lets appoint an OOIFB Chair now. Then at the May meeting we can appoint a Chair-Elect (Action Item).
 - A motion was made and passed to appoint Kendra Daly as the new OOIFB Chair. (O’Donnell/Crone)
 - Lisa reminded everyone that there had been a suggestion to include an early career member on the OOIFB.
 - Action Item: Announce a Call for Nominations to fill one position on the OOIFB. OOIFB should carefully evaluate the current FB composition.
 - The Past Chair is ex-officio position.
- Next in-person OOIFB meeting – It was suggested that we have hold the meeting at the same time as the workshop. OSU or Portland, OR are possible sites. If possible, a field trip to Corvallis would be nice. Ed and Annette will coordinate and then get back to the FB.

Round the Table:

- Larry commented that he enjoyed listening in.
- Brian wished he could be at the meeting in person
- Ed Dever - He enjoyed sitting in this meeting. He enjoyed hearing about ONC metrics and having other agencies participate.
- John Trowbridge - He thanked for all of the contributions and for everyone’s efforts.
- Kendra thanked the OOIFB for their nomination for her as chair.
- Jim O’Donnell said he was sorry that he could not attend the first day of the meeting.
- Tim Crone thanked everyone for all of the feedback on the DDCI report.
- Dax thanked the group for letting him sit in.
- Bob Houtman commented that it was an excellent meeting and thanked all for volunteering their time.
- Lisa Clough - She is happy to be with the OOIFB. She loves the position of “not looking back.”

1400 Adjourn OOIFB Meeting – A motion was made and passed to adjourn the meeting (Jim O’Donnell/Tim Crone).