U.S. Animal Telemetry Network
Steering Group Meeting SG-11 Minutes
November 30, 2021
1:00-5:00pm Eastern Standard Time
https://www.gotomeet.me/IOOC

Co-Chairs: Sam Simmons & Bill Woodward

Participants: Bill Woodward, Sam Simmons, Joy Young, Gabrielle Canonico, Greg Skomal, Bob Houtman, Jake Levenson, Jim Price, Kristen Hart, Matt Ogburn, Mike Weise, Randall Wells, Sean Hayes, Woody Turner, Kristen Hart, Megan McKinzie, Sean Hayes, David Smith

1:00 <u>Welcome</u> (B. Woodward and S. Simmons)

S. Simmons and B. Woodward welcomed everyone to the SG-11 meeting and welcomed M. Edmondson from Consortium for Ocean Leadership to the team supporting the Steering Group (SG). S. Simmons asked if any participants needed to leave the call early because their input is necessary for nominations for chair person. A clarification was made that the chair person election is voting members only, but input from the rest of the participants is appreciated. B. Woodward and S. Simmons moved the nominations for chair person to follow the Terms of Reference agenda item.

1:05 <u>IOOS Marine Life Program</u> (B. Woodward)

B. Woodward provided an update on where the Marine Life Program currently stands. B. Woodward and G. Canonico are briefing the IOOS Federal Advisory committee on December 6, 2021 on the program.

B. Woodward provided a simple overview of the Marine Life program and the critical questions about marine life such as where did they come from? Who is there? How many? Why are they there? And the rationale behind their movement. The Program builds upon MBON and ATN as a foundation and will specifically address marine animals and marine life. B. Woodward provided a list of goals to ensure a long-term sustained marine life observation capability that will:
1. Move beyond just proxy measurements
2. Expand collection of marine life observations in the ocean and Great Lakes
3. Support analysis of marine life data; co-develop products with users to ensure relevance for management and decision making
4. Forecast implications of climate change on living resources and ecosystems
5. Integrate with physical, chemical, biogeochemical observations
6. Advancing new technologies

IOOS requested $15M in the FY22 President's Budget for grants to external partners that expand the collection of marine life observations, support analysis of marine life data and information products, forecast the implications of climate change on living resources and ecosystems and establish a Marine Life Data Assembly Center. An additional $2M was requested for increased staffing capacity. B. Woodward and IOOS are still trying to understand what decisions are being made and how any of this request will come to fruition, but it is still a very unknown level of funding.

The key components of the IOOS Marine Life Program are to:

- Support existing and new base level observational efforts
- Expand existing national cyber infrastructure
- Add management and dedicated data handling positions
- Continue the successful interagency competitive NOPP process

B. Woodward quickly summarized that marine life observations are needed to:

- Assess ecological change
- Identify hotspots, species aggregations
- Document impact of climate driven oceanographic processes on living resources
- Inform adaptation strategies and management
- Prioritize areas for conservation and restoration
- Track ecosystem sentinel species for insight into ecosystem function, human health risks and future change

B. Woodward asked if participants had questions regarding the IOOS Marine Life Program overview. M. Weise asked if you can relate the national priorities to both regional and national priorities that were outlined from the last two ATN workshops. M. Weise wanted to see if/how they were influenced. B. Woodward answered that all that information is available and IOOS has been working with the regions to help identify the regional priorities and the conclusions and findings and recommendations that were documented throughout the workshops. We continue to push and encourage the regions to take advantage of all of that information. It is a key piece to helping make decisions. G. Canonico stated that the workshop reports are an important reference for the IOOS program and to help categorize funding. G. Canonico also mentioned it helps determine where there are opportunities for stakeholder engagement to amplify the needs discussed at the workshops. S. Simmons reminded participants that we still have the ATN implementation plan on the table and still an opportunity for this group to build upon the workshop outputs and determine how and where that should be integrated and incorporated into whatever comes next.
S. Hayes asked if Passive Acoustics Monitoring (PAM) is within the scope. G. Canonico answered that the consideration is very broad and is any measure of marine life-living organisms and can include PAM, Omics, and other advances in new technology. G. Canonico mentioned it is all encompassing and is ambitious and challenging because there is a lot of activity in this space. G. Canonico mentioned we need to prioritize investments and make connections where it makes sense among any of these networks. S. Hayes asked a clarifying question if ATN is a central figure or are there several other groups converging on this with equal influence? G. Canonico answered the core networks that we are drawing from are ATN and MBON in consultation with the 11 regional associations where they have input from stakeholders about needs or existing activities. S. Hayes mentioned that this is a great opportunity and could lead in a lot of directions. B. Woodward mentioned the challenges of a broad scope, but a lot can be done. The biggest challenge will be what we are able to get accomplished and how we decide that will be driven in part by funding availability. B. Woodward followed up by stating once they know the appropriated funding he will relay to the rest of the group.

G. Canonico asked a clarifying question to S. Simmons about the revised ATN implementation plan and can it be an opportunity to advance and support the marine life program, and asked for her thoughts on what opportunities are there to continue to organize our collective thinking, where we can target new investments if the funds materialize. S. Simmons mentioned this could be a later discussion, but we should not develop it separately from this marine life program. S. Simmons also

mentioned that it makes sense for the ATN plan to be inclusive of our part of marine life planning. It is an opportunity for this group to shape the telemetry piece of marine life program. S. Simmons stated she is happy to continue this discussion offline with G. Canonico.

1:15 <u>Updates</u>
- **ATN** (B. Woodward)

B. Woodward provided an update on the ATN. He provided background on three years of ATN funding which totaled $1.46M in FY-19, $1.38M in FY-20, and $1.435 in FY-21. B. Woodward provided a breakdown of where the funding comes from- ONR ($550K), IOOS ($735K), and NMFS ($150K). Much of this funding goes to the regional associations and he presented a slide showing details of how the funds are distributed.

The Animal Borne Ocean Sensors (AniBOS) network is an international program with six different countries participating. ATN is leading the development and implementation of the AniBOS real-time data management strategy and approach and is assisting with near real-time data management. B. Woodward pointed out a significant milestone in August 2021 which was a successful test of our ATN DAC GTS data pipeline which had been in development for two years. The main challenge to overcome is finding data that we can put through that pipeline. The COVID pandemic has severely limited the number of tagging programs in place for the last two years. B. Woodward is looking forward to more tagging operations and getting these data out to the global community for assimilation into both global and regional models. Now that this tool is in place we must also address the larger problem which is: are regional, national, and global modelers able to download these data and assimilate them into their models, and if so, could that be replicated into other national AniBOS programs?

B. Woodward also mentioned a few publications completed by the AniBOS group (see **https://doi.org/10.3389/fmars.2021.751840**). In addition, AniBOS has been endorsed as a project in the UN Decade of Ocean Science for Sustainable Development. This project will be attached to the decade programme "Ocean Observing CoDesign- Evolving ocean observing for a sustainable future". We need to learn more about how we can support the UN Decade work.

The ATN ARGOS Fees program is still increasing and currently supporting 55 programs and 2,237 tags. B. Woodward reminded the group that 2,237 is the total number of tags that we are committed to supporting, not the number of tags currently transmitting.

B. Woodward highlighted BioTrack which is the joint MBON - ATN network to create methods for integrating the analysis and visualization of biodiversity and marine animal tracking data and use them to generate the information products needed by conservation and natural resource managers and other stakeholders. There have been two meetings with great presentations by the National Marine Fisheries Service (NMFS) and the South Atlantic Fishery Management Council (SAFMC). A key part of this is to work with people who need that data.

B. Woodward showed the group the illustrated workshop reports that are completed and can be found on the ATN website https://ioos.noaa.gov/project/atn/ under the Documents Tab, as well as the 10-page summary of each of the workshops, national synthesis and recommendations. All is completed and available to assist with making decisions for the marine life program and for other regional needs.

B. Woodward wants to make sure the participants are aware of the funding opportunity for FY22 US Marine Life Observations: Coordinated Marine Life Biodiversity Observation Network (MBON) and Animal Telemetry Network (ATN) Activities to Ensure Resilient, Productive Ecosystems and Human Communities in the Face of Change. Proposals are due by December 17, 2021 and proposal requirements are very specific and it is important for those planning to propose to make sure you complete all the necessary items to be compliant for the funding. S. Hayes asked in the chat about the details of the proposal requirements.

B. Woodward mentioned the ATN network coordinator succession plan because B. Woodward will be retiring June 30, 2022. Unfortunately, not much can be decided at this point without secured funding levels for FY22. It has been difficult to make a decision about how to create a succession plan because filling the position is dependent on availability of funds. No updates other than to stay posted on the planning cycle.

ATN DAC Data Management services will not be reported on today, but that is still important and on the radar and one of the actions to come out of the meeting will be next steps.

K. Hart asked a question in the chat: "is it [AniBOS] a special class/type of tags that have to go on animals? Just thinking we have the unique opportunity to (often) track turtles through hurricanes…but do we have the right type of tags to put on them? M. Weise responded: "my understanding is that the near real-time temp and salinity tags historically have been SMRU tags, but Wildlife Computers now has temp and CTD tags that can send data in real-time and go on many more taxa than SMRU tags. S. Simmons says expansion efforts are dependent on funding but certainly if you have access to Wildlife Computers temp and salinity tags and deploy them that could be a part of the dataset. B. Woodword said Wildlife Computers are on deck for having the DAC automatically ingest data from them but still not ready yet. M. McKinzie will touch on this during her presentation. J. Levenson mentioned the Arribada tag using the Horizon ARTIC chipset via Argos/Kineis that includes CTD measurements, but development is being finished and it is not in mass production. M. McKinzie mentioned that the data has to be ingested in DAC in near-real time, and must contain either temperature and/or salinity profiles, and those profiles have to have a latitude and longitude assignment to be converted into BUFR and submitted to the GTS.

Operational DAC (M. McKinzie)

M. McKinzie provided an operational DAC update on six overarching themes:
1. DAC Stats
2. Training, Workshops and Outreach
3. Working Groups and Committees
4. Metadata/Data Ingestion and Secure Access
5. Data Visualization and Public Access
6. Permanent Data Archival and Release

M. McKinzie reported on some Data Assembly Center (DAC) stats from the past, April 2019 to July 2021, indicating the DAC had previously ingested 149 projects from74 PIs and 56 organizations with 5,553 deployments and 83 species with a mix of satellite, GSM and acoustics tag types. In the portal, there were previously 102 projects from 53 PIs and 40 organizations with data from 3,489 deployments on 59 species using satellite and GSM tags. Currently (August 2021-November 2021), there are now 156 projects from 77 PIs and 58 organizations with data from 6,049 deployments on 84 species using a mix of satellites, GSM, acoustic and DTAGs in the DAC. In the public facing data

portal there are presently 117 projects from 57 PIs and 42 organizations with data being visualized from 4,242 deployments on 65 species using satellite and GSM tags. These data were provided by registrants within the DAC system including project PIs, collaborating researchers or data managers. The portal includes data that are public facing, have been visualized and available for viewing. The reported differences between what is in the DAC and what is visualized in the portal are due to projects missing key metadata components or the data itself or data are from tag types (e.g., acoustic or Dtag) which we cannot yet push to the portal as the capability to handle them is still under development. The DAC continues to grow and the future is looking good for new data and new projects to continue to be submitted.

Over the past 2 years there have been five training events, which have been a mix of multi-day in person workshops and virtual 2-hour webinars during the pandemic. In-person events are more successful than virtual in terms of what data ends up in the system following these events.

There are no immediate plans for hosting another DAC training workshop this winter, but we are hoping to plan a West Coast and Pacific Islands acoustic node manager training somewhere between February and March of 2022. This will likely be a multi-day in person event either in Moss Landing or somewhere in the central California region, dependent on status of the pandemic. It would be a small event with 10-15 people or less. Attendees would include the data manager from the Pacific Islands Region Acoustic Telemetry (PIRAT) node that is being established by PacIOOS and researchers from the Pacific Island Regional Fisheries Science Center (PIFSC) and the Cooperative Institute for Marine and Atmospheric Research (CIMAR). It will also include researchers from UC Davis and their newly developed telemetry node. There may also be a representative from the NOAA National Marine Sanctuaries and possibly some of the regional researchers who submitted IOOS RA proposals that ended up in their tier 2 categories if we have funds. This event would be run by OTN and M. McKinzie will also be helping with logistics to get a West Coast node(s) up and running and provide training for new data managers as those nodes come online. We are still in the early stages of planning this event.

In the future M. McKinzie is hoping to get back to hosting in-person satellite training workshops and will most likely go to the Pacific NW region next and also possibly a more inclusive regional event aiming for spring or early summer which is still to be determined. Lastly, M. McKinzie suggested hosting something in the Great Lakes regions then heading back to the East Coast with a more targeted Mid-Atlantic workshop.

M. McKinzie provided some background on the working groups and committees she is currently serving within, which include the ESIP BioCluster, the AniBOS Data Committee, the BioTrack Working Group, and soon the OTN International Science Advisory Committee (ISAC). Within the ESIP BioCluster she has been working on the ESIP Biological Data Primer which is similar to a decision tree that new data managers or researchers could follow if they are looking to apply data standards and conventions to their data or manage it as a network or node. It has been published on [Figshare](). In mid-January at the ESIP winter meeting, the cluster will try to establish some test cases for use of this primer. She also reported on the successful AniBOS implementation of the ATN DAC near real-time data management strategy, the publishing of the AniBOS manuscript, as well as the AniBOS endorsement under the UN Decade Program. Additionally she is currently working on finalizing data and metadata templates for AniBOS. Upcoming activities include TableDAP for AniBOS metadata and hopefully OTN implementation. No major updates from BioTrack. M. McKinzie was invited to join ISAC and looks forward to being a contributing member.

M. McKinzie is continuing to make updates to all the various tools, platforms, and mechanisms used for metadata and data ingestion and secure access pathways. For the Registration App there is a new editable table view which allows for all registered satellite deployment metadata to be edited more easily as well as new project registration components for project level metadata and now an option to select metadata for more than one telemetry type (i.e., acoustic). Also, she is currently working on updating the satellite deployment metadata templates to better align with our NCEI archival templates and finish adding acoustic tag and receiver metadata into the system which will be ingested directly from OTN and viewable but not editable at this point. Also working on switching from the Research Workspace for secure file and data access to the Registration App and you can now get access to not only the raw auto-ingested data files but also get the QC'd and Foie Gras files for viewing or download. Future work will include getting Dtag project registration integrated into the App, and working to separate the GSM projects from the satellite projects and finalizing acoustic data ingestion pathways and file access mechanisms for that information.

M. McKinzie provided updates on the data portal. Foie Gras has been implemented into the data portal but only 50% are available and she is working to modify the code to fix data errors and improve outputs. Additionally, the DAC will incorporate Foie Gras into the "all" layer and add to project pages and near real-time 30, 60 and 90 day layers. She also mentioned there needs to be some descriptive text about Foie Gras added to data layers and project pages, the animation tools should be online by the end of the year and planning to add an archive tab to the portal catalog for more streamlined accessed to downloadable datasets. M. McKinzie is planning to create Dtag project page and catalog mock-ups with the help of Axiom and also continue to integrate ATN and MBON layers into the ATN portal as the IOOS Marine Life Program develops. There have been some glitches as data are pushed or pulled from one portal to the other.

M. McKinzie provide an update on the presently available data archival pathways and release of data to DataONE. Currently, 24 satellite telemetry datasets are available for download from DataONE under the Research Workspace member node. A Project White Shark data descriptor manuscript was recently submitted to scientific data describing the process of auto-ingesting data directly from Wildlife Computers into the DAC and then cleaning these data and prepping them for archive at DataONE, and is currently in review. M. McKinzie is also working on finalizing the NCEI satellite data templates, both trajectory and profile, and aligning those templates with the developing AniBOS templates for easy crosswalk and also starting to work on a Dtag NCEI template. The next steps will consist of finalizing metadata links and harvesting pathways for near real-time satellite data into the NCEI file templates then generating and sending a batch of example files to NCEI for review (trajectory and profiles), finalizing OBIS-USA templates and developing a crosswalk, plus working on modeled and delayed mode data NCEI templates, and on acoustic data archival.

K. Hart wanted to thank M. McKinzie for all her help and effort, and it is important to document our issues to see if that can help troubleshoot in the future. M. Weise in the chat asked: "If I recall there was some interest/talk on the west coast for developing a non-OTN acoustic node. Has the community converged on a node concept? M. McKinzie responded, yes, some on the west coast researchers who submitted IOOS proposals in tier 2 do appear to want to develop a non-OTN regional acoustic telemetry node, which they are free to do, but those metadata/data would not be able to be integrated into OTN or ATN framework and therefore it cannot be ingested into DAC or displayed in the Portal, or matched with data from regional nodes which are following OTN framework. Thus, it is possible, but not recommended. The OTN node concept is well developed and it is the concept ATN will/is adopting. M. McKinzie is looking to invite some of the individual researchers wanting to set-up non-OTN nodes to participate in part or all of the winter node

manager training in hopes of teasing out why they do not want to follow OTN framework and/or get them on board with implementing OTN node concepts. M. McKinzie also stated in response to a question that requirements for data to be converted into BUFR and inserted onto GTS are that they must be able to be auto-ingested into DAC in near real-time (new BUFR messages are created and sent every six hours) and have associated locations matched to each temperature or temperature/salinity profile. Other than that very little metadata are required for the generation of BUFR messages.

W. Turner asked what are the challenges with integrating data from either the ATN or MBON portals into the other respective portal. What are the challenges with the core integration? M. McKinzie answered that the ATN and MBON portal are both designed and managed by Axiom. In theory we share the same behind the scenes infrastructure but one of the challenges is that Axiom had to modify some of their cyberinfrastructure to handle ATN data and ATN also has mostly embargoed data which has caused issues with shifting data and layers between the portals in both directions. Also some of the metadata links are broken if data are shifted from one portal to another and does not carry through. These metadata are important and are used to describe the projects/deployments and provide attribution so we are revisiting how to modify those data or catalog entries to ensure these metadata connections are not lost and we are continuing to look into what are the best ways to integrate that data and what data should be integrated. B. Woodward responded that we are seeking to create a unified DAC with ATN and MBON data but additional issues with making the data accessible and the idea of moving all data from the ATN portal into the MBON portal was not the best idea because the MBON portal doesn't currently have the ability to embargo data and these things have to be considered carefully on what makes the most sense for integrations. B. Woodward added that in the initial discussions of what a marine life program would look like we will need to include an adequate array of skilled and capable data management personnel that are doing the very things M. McKinzie has been doing which are essential for a successful IOOS Marine Life Program.

ATN DAC Data Management Policy Guidance Document (B. Woodward and M. McKinzie)

B. Woodward stated that he has worked over the last five months with M. McKinzie and M. Biddle on the policy document and we are 95% complete with what will be a valuable and useful DAC data management policy guidance document. This wording has been carefully chosen and will hopefully come out in a final draft form in a month. It was difficult to accomplish but very important. M. Weise mentioned that it is important and the timing is spot on with more data becoming available in the portal and available for sharing, people will want to understand those data policies as they push data out and make it available for sharing and we are all set up and great to partner that with policy and guidelines. M. McKinzie mentioned that some language is general and applies to all telemetry types while other details are specific to satellite telemetry we presently ingest, visualize, and archive, and that we can provide additional relevant details about other telemetry types as they become more integrated into the DAC.

SG Updates (40 minutes)

DaViT Visualization Tool Demo (J. Young)

J. Young mentioned this is something new the FACT Network has been working on called the Data Visualization Tool (DaViT). This is a new tool to enhance your research and bridge the gap between

the public and scientific communities. It is a map that will be hosted on the SECOORA website that shows distribution of animals by species and range. J. Young wanted to illustrate how much data fit into the FACT network database and includes: 2,101 receiver stations with 199+ million detections, 8,028 tagged animals of 108 species and 152 projects. The goal is to have this tool reflect all of the data being collected. Some priorities in this tool are: 1) to not reinvent the wheel and be complementary/compatible with the ATN portal and other efforts and 2) requires full buy-in from the membership. This effort is half science and half psychology that will satisfy the mandate of funders to make data public and have this information be useful to the public. This will raise awareness of research for managers and bring science to the people while protecting data privacy. This is accomplished by summarizing sensitive data in ways that are useful and display it on the web map. This was possible from a SECOORA grant in December of 2020 and they started out by sending a survey to stakeholders on what they would like to see or would find most useful and their priorities. The tool was then in development and presented to the FACT network in June 2021 and then they took the feedback that was gathered during their summer meeting to improve the development and will present to the FACT network again in December 2021 with the goal to have an official launch in spring 2022 followed by a stakeholder workshop to teach them how to use it. The audience is for the general public and not for scientific use (teachers, managers, general public). The survey that was sent out had 29 respondents from the National Oceanic and Atmospheric Administration (NOAA), the Bureau of Ocean Energy Management (BOEM), the National Marine Fishery Service (NMFS), the Atlantic States Marine Fisheries Commission (ASMFC), and Florida State University (FSU) and based on the results, the range and distribution summarized by species and species group were of most interest. Range will be calculated with a concave hull and distribution with a kernel density estimate (KDE). In order to get buy-in the tool needed to be easy for people to use with a query to pull the data directly from the Research Workspace (done semiannually). J. Young mentioned acoustic data is not real-time therefore locations are estimated to one decimal place, each animal's movement is estimated along an interpolated track and then used to calculate area use metrics, then the data are spliced by year, month and species. Multiple projects are combined together if they have the same species. J. Young provided a demonstration of the tool and illustrated differences between a concave and convex hull. A concave hull was chosen to calculate species distributions that are less reliant on where the receivers are placed in the water. There is an additional buffer and smoothing polygon for small range distributions, and metadata and citations are provided. J. Young demonstrated the DaViT version one as well as the updated version with feedback from FACT. This feedback included positive feedback but the main concern was if this could be used for potential harvest of animals, misuse of data in publications, incorrect assumptions, buy-in from managers, usefulness in a riverine system, and would it satisfy grant requirements. To address these concerns J. Young mentioned there will be a panel discussion to address the potential harvest concerns (Integrated Marine Observing System (IMOS), MOTUS and OCEARCH) and would ask if they have had misuse of their data. Additionally, they reached out to top journals with questions about DaViT and if they tried to publish and will be presenting those results soon. There will be another panel discussion about funders and if this tool will be useful and if it can help researchers get funded.

There have been updates to the tool such as a legend, added contextualized narrative to the website explaining the purpose and tool. For buy-in J. Young is creating specific toolboxes and an introductory letter. Currently working on a riverine system next steps because it requires a different algorithm. J. Young demonstrated the current website to the group and mentioned they are still tweaking the version of the map and a disclaimer with publications and FAQs. Next steps are to rethink the language for readability as well as demonstrate the toolkit with range, species distribution, timescales, and overlay of species which can be altered by transparency, color scheme and legend. Next steps in the timeline include the FACT meeting in December of 2021 to alleviate

concerns and get buy-in, develop curriculum that can accompany this tool and officially launch in the spring of 2022, and a showcase at the summer 2022 meeting.

S. Simmons said this is fantastic and happy to be a beta tester. M. Weise praised J. Young for this tool and mentioned it was exciting to see. He asked about cross walking with DAC on the technical side, if there have been interactions with Axiom, if there is interest in trying to crosswalk it and what are the limitations or hurdles. J. Young mentioned that discussion is beginning and Axiom is building this with SECOORA and is told that they would be building it for cross walking into the ATN portal for national-scale data integration.

Hawaiian Motes (B. Woodward)

B. Woodward provided the update from K. Holland who sent his apologies that he was unable to attend today. B. Woodward re-laid the summary of the Mote project. ATN provided funds to install 3 mote receivers and transmitting tag from Argos receiver. This will increase the number of hits from the satellite tags in real-time. The COVID pandemic has impacted the installation efforts because all of the equipment is stored on the big island. There are three confirmed sites for deployment: two on private property and one in a national park. These sites will give good coverage between the big island and Maui. Once ATN gives approval we will activate the units which will hopefully be accomplished by the end of the year.

R. Wells asked if we could piggy-back on those Argos frequencies if some of their tags get picked up. B. Woodward thinks it is possible but is unsure. G. Skomal also said they should be able to access transmission.

Cape Cod R/T Receiver Buoys (G. Skomal)

G. Skomal provided an update on the live receivers with the financial assistance from ATN/ONR allowing the purchase of 5 real-time receiver buoys in 2020. These 5 receivers will detect acoustically tagged animals in real-time and send data to designated recipients. G. Skomal provided a visual of where the current buoys are deployed in front of very popular swimming beaches in 2020 and 2021 with great success until they were impacted by the elements. G. Skomal provided an image of the buoy design that uses an acoustic receiver that is solar powered. Any time a tagged white shark swims within the range of the buoy (between 200 and 500m) the receiver will detect the tag and alert lifeguards. The test was successful in 2020 and 2021 with over 100,000 detections from 100+ tagged animals. However, there is some wear and tear to the equipment caused by weather conditions and the company that built the buoys had not tested it well in nearshore conditions, dynamic environments, nor'easters particularly effected the solar panels and damaged the instruments. There are some saltwater intrusion issues with connectors. Currently G. Skomal is working with Innovasea and NexSens buoy manufacturers to build more durable units.

B. Woodward asked what the plan will be once the repaired equipment is received to redeploy in the spring or summer of 2022. G. Skomal said Innovasea will take the winter to rebuild the units and ship them back with the hope of redeploying them by June of 2022. M. Weise asked what action lifeguards and other data recipients are taking upon receiving notice of a real-time detections. G. Skomal responded that each town handles the response to the data streams differently. Truro vs. Wellfleet: in Wellfleet the information goes directly to the lifeguards who will pull people out of the water for an hour after detection. It provides lifeguards with a sense of how long sharks are in the area and can make decisions on beach management and frequency of arrivals.

Truro does not have their information go to lifeguards and there are political and liability issues with those decisions. B. Woodward commented that it is a complex social issue, and a recent NYT article provides an example of how complicated and biased it can be. B. Woodward mentioned this is doing something to help public safety and beach management which can make a difference and there have been no shark attacks in the last 2-3 years.

K. Hart asked if there were any false detections. G. Skomal said they are confident in the accuracy, they can tell by the dataset and array detections that they can follow a shark along the beach from receiver to receiver. The false detections were sorted out earlier and it is nice that these units tell the arrival time and departure time of the animal with more than one detection.

Break (15 minutes)

Review of Actions (20 minutes)

#	Action Item	Responsible Party	Due Date	Comments/Updates
1	Consider potential candidates for the position of ATN Coordinator	All SG Members	On-going	
2	Keep ATN SG members updated as plans for ATN Coordinator succession develop.	B. Woodward	On-going	Updates to include key attributes of the successor, in addition to developments regarding the position structure (FTE vs. contractor).
3	Reach out to new BOEM director to inform her of the ATN and its capabilities; reach out to managers about potential funding opportunities for BOEM to fund	J. Price	On-going	
4	Review new package (ADEPTHER) for data visualization, funded by NPS, and the USGS TAME tool.	K. Hart, M. McKinzie, J. Young	Remove	On-going, low-priority.
5	Determine which sections of Data Management Guidelines support the needs of the acoustic data community. Then, discuss with general counsel how to ensure data policy is in line with federal law.	J. Young, B. Woodward	Remove	
6	Arrange for a demo to highlight the environmental layers recently added to the DAC and maximize the information dissemination and get input on usefulness/utility	M. McKinzie	SG-12	M. McKinzie to lead and send doodle poll to gauge interest from all SG members. Possibly reach out to MBON and others.
7	Share template language on user fees	J. Young	Completed	On-going. J. Young will report out at SG-11.
8	Accept final changes to ATN Terms of Reference and share with the SG.	S. Simmons, B. Woodward	Completed	
9	Prepare a presentation on the Axiom visualization tool (DaViT) for SG-11.	J. Young	Completed	
10	Review candidate agency data management language that directs PIs to use the DAC in their funding announcements.	M. Weise (lead); SG Members (review language)	Completed	

11	Meet to put together a notice and agreement for the Tags for Researchers loan program.	R. Wells, B. Woodward, M. McKinzie	Completed	

B. Woodward walked through each action item with the group. B. Woodward gave an update on action items one and two, which is still applicable but unable to make it an actionable piece of work at the moment because we do not know the funding levels and nature of the position so it is difficult to identify individuals for the position. B. Woodward proposes to informally come up with possible candidates, and asks the group if they have good candidates in mind. B. Woodward asked to keep this as an action item for now. S. Simmons asked if it is worth it to think about an interim person until we get more information. M. Weise mentioned that it is good to be prepared, and seconds S. Simmons' idea.

J. Price has been unable to reach the new BOEM director, but would like to report out and has thought a lot about how he could plug BOEM back in as an ATN funder. In the context to BOEM having better funding outlook for environmental studies program J. Price can make a pitch again to his managers. J. Price would like to brainstorm with B. Woodward and M. Weise and whoever else would like to join about how to propose ATN to the next funding cycle in FY23. S. Simmons asked if the public comment period for the environmental studies program development plan for FY23-24 is still open and if ATN members could comment about how ATN is a priority. K. Hart mentioned Project WOW (Wildlife and Offshore Wind) at Duke University which is funded by BOEM and the Department of Energy (DOE) could be an excellent study profile and could be a good link for ATN. M. Edmondson mentioned she is currently a consultant on Project WOW and can make connections if necessary. May have an opportunity in the future for telemetry data with upcoming wind projects at NMFS. J. Price said it was a good rationale for comments and an identified need and accomplishments for ATN and could have another briefing with him about it. J. Price said we should work together create a document for defined need, accomplishments and brief BOEM managers. Add a new action item that J. Price will convene a group of federal employees to figure out how to proceed with ATN funding proposal and briefing.

Action item #4: M. McKinzie mentioned that no progress has been made and is unsure if we should keep it as an action item. It would be good to return to it and see if J. Young would have something for the DaViT tool. K. Hart said maybe have a 30-minute chat about it. B. Woodward proposes to remove it as an action item.

Action item #5: This item can be closed. J. Young said it was okay and the correct course of action.

Action item #6: M. McKinzie will arrange for a demo of the already integrated environmental data layers. It was suggested that we hold a demo/discussion before the next SG meeting. M. McKinzie agreed but also wanted to reach out to G. Canonico about incorporating MBON researchers into it. It was suggested that we talk to Maria Kavanaugh about Seascape data. M. McKinzie said there is available seascape data but need it at the 1 km scale instead of 10 km scale.

Action item #7: J. Young said she is able to report out user fees. J. Young stated we have had DaViT listed on two grants, one was awarded and generally focused on processing telemetry data, social media exposure and travel. The one that was not funded had showcasing through DaViT and pushing coordination efforts. We provided a data sharing plan for them, text about the network and letter of support and it was described earlier. The grant that was not funded was 14% of the DAC budget and the one that was funded 0.004% of the 9 million dollar project budget. B. Woodward said that he wasn't sure what we were seeking with this action item and thought it was looking for

examples from the agency side of how they implement data management costs. The context was based on the idea that PIs would ask for funding for data management and the agency would pass those funds to the PI and some of it will go to help the DAC. J. Young thought it was something else. B. Woodward said we have made no progress on the action to move forward to apply this concept of having agencies fund data management done by DAC through funding PI proposals and were seeking some language of what we were asking for. M. Weise mentioned there was another action item where agencies had language in calls to encourage proposers to put their data into a DAC which is action item #10. B. Houtman went back to the notes for action item 10 and that we require the awardees to put the data in a publicly available database and that is the current wording. J. Young said it sounded like she interpreted this differently but happy to keep this one to work through this to explore agency wise or from other perspectives. B. Woodward said that it is a team activity and suggested we table this action and spend time on user fees approach for acquiring funds from other IOOC agencies - the larger picture. B. Woodward had a list of steps that we need to take to move this concept forward and where we need to put our focus. B. Woodward is happy to include J. Young on that team and put some energy back into that effort and close out action items #7 and #10 then put a focus on developing the user fees approach. With respect to user fees: M. Weise noted ONR just had a meeting reviewing their 6.4 program including discussion of how they can provide funds for ATN. User fees were mentioned and ONR is ready to go if we provide the mechanisms and there is money on the table and how to handle that. As far as action item #10 M. Weise just sent out an email with the language and it is now completed so this action item can be closed. B. Woodward stated to close out action items #7 and #10.

Action item #8: B. Woodward said to close out this item it will be discussed later.

Action item #9: J. Young has completed and can be closed.

Action item #11: B. Woodward proposed to close this item out as well because the documents will be sent out after the meeting.

3:45 SG Chairperson Election and Member Enlistment (15 minutes)

B. Woodward proposed their chairperson election first followed by member enlistment. The meeting will be turned over to one of the voting members, M. Weise. The chairperson or co-chair person election for the coming term is a one year position and will ask M. Weise to take over to ask for recommendations from voting and non-voting members. The voting members are M. Weise, S. Hayes, with a request made for J. Price to also be a voting member given BOEMs previous funding. There were no objections. M. Weise also mentioned that IOOS is providing funds and B. Woodward could represent that IOOS vote. M. Weise clarified 12 month terms and that both S. Simmons' and B. Woodward's terms are up. The co-chair role is a good way to balance needs and he proposed to off-set the co-chairs as they cycle off instead of getting two new co-chairs now and then find a way to stagger them in the future. S. Simmons thinks that makes a lot of sense and notes it is very helpful to have co-chairs for support in meeting preparation and to bounce ideas off of. Given B. Woodward's retirement in June if he is willing to continue till then we could start staggering the terms then, she is happy to continue as co-chair if the group would like her to.. B. Woodward seconds the use of co-chairs and staggering their terms. B. Woodward checked the TOR and co-chairs must be federal members.

M. Weise asked for recommendations for other chairs:

- o J. Price nominated M. McKinzie or S. Hayes for the job – but TOR as stated M. McKinzie does not qualify.
- o J. Price also stated he is happy for S. Simmons to continue on and nominate S. Hayes.
- o S. Hayes wants to nominate J. Price
- o S. Hayes is willing to accept nomination but hesitant because of workload.
- o J. Price does not have bandwidth and declines the nomination
- o B. Woodward is willing and able to continue on as co-chair until June 30, 2022, his retirement date.
- o S. Simmons mentioned it would make sense if B. Woodward rotates off in June to stagger co-chairs. Or would it make it make more sense for Sean to start now, Sam to rotate off and that way we maximize transfer of Bill's institutional knowledge?
- o S. Hayes said June 30th would be a better time for him to take over as co-chair.
- o M. Weise mentioned another option, S. Hayes can step into his own role as B. Woodward is finishing in June.
- o W. Turner suggests B. Woodward should continue until his retirement and S. Simmons continuing and S. Hayes stepping into role as co-chair in May/June. J. Price seconds this. M. Weise also seconds that idea and states it would allow for staggering process and rotation with some continuity.
- o Any recommendations or nominations for S. Hayes, he said to start including him and begin engaging him in co-chair meetings.
- o M. Weise asked for a vote for S. Simmons and B. Woodward to stay on with a 1 year extension for Sam, 6 month continuation for Bill and S. Hayes to start his term as co-chair after June 30th
- o M. Weise, B. Woodward, J. Price and S. Hayes all voted "Yay"

Motion passed. S. Simmons and B. Woodward to stay on (1 year extension for Sam, 6-month continuation for Bill and S. Hayes to start his term as co-chair after June 30th)

Membership enlistment:
Need a head count of who is willing to stay on of another 2-year term as a steering group member:
- o Kristen Hart- yay
- o Sean Hayes- yay
- o Jim Price- yay
- o Kim Holland (offline) – B. Woodward to follow up
- o Bob Houtman- yay
- o Jake Levenson (J. Price stated he is willing to continue on -yay)
- o Matt Ogburn- yay
- o Sam Simmons- yay
- o Greg Skomal- yay
- o Dave Smith- yay
- o Woody Turner- yay
- o Mike Weise- yay
- o Randall Wells- yay
- o Joy Young- yay

B. Woodward thanks everyone for their support and states it is a wonderful group and the reason we have been successful. B. Woodward closes out chair person election and membership enlistment.

4:15 Steering Group Terms of Reference Review, Discussion, Approval (10 minutes)

B. Woodward invites comments on and seeks approval of the revised TOR proposed by B. Woodward and S. Simmons.

M. Weise asked about voting members and if that will be changing and if it is worth revisiting the difference between feds and non-feds to opening up the voting membership to other feds. B. Woodward said it is able to be changed and have not discussed it but is a good idea. B. Woodward asked if it should be done now or in a year to update voting powers. S. Simmons suggested leaving it for now and once we get better idea of funding associated with the marine life program we can revisit it.

J. Young asked if they have to be federal and providing money or what if there is someone who wants to join who has funding but is non-federal - could they vote? B. Woodward says yes they should be able to vote and S. Simmons noted that was always the hope, that we end up where J. Young mentioned and that needs to be considered in how the terms of reference might be revised. Again, revisiting any necessary language changes within a year or two once the marine life program, or other funding sources are better identified makes sense. Currently, will keep the TOR as is for voting versus non-voting members.

W. Turner asked if it is worth running it by a general counsel about non-fed providing money and should be able to vote, but mentions it gets tricky and might be good to run through general counsel in one of our agencies and address it this way down the road. B. Woodward says that we should address it this way when the time comes.

B. Woodward wants to add one thing in the last paragraph that the SG will sunset in 2026 and these TOR can be amended at any time and the SG may be removed or extended at any time by renewal of these TOR. B. Woodward proposes the heading should have a statement that says "renewal #1" for the continuity and physically recording renewing TOR. No objections to that. No additional comments or additions from the steering group.

4:25 <u>Team Activity Updates</u>

● **ATN Equipment Loan Program** (M. McKinzie and R. Wells)

M. McKinzie has purchased and received all the equipment, it is presently at Mote, asset tags were also purchased, and these trackable asset numbers were entered into an excel document to track equipment. M. McKinzie stated the need to finalize the program name but are currently looking at "the receiver equipment loan program" or "equipment loan program" but is open to discussion. M. McKinzie and R. Wells finalized a program description document, which will be available on the website and they also drafted a loan application. M. McKinzie mentioned they have not finalized the official loan agreement and asked J. Young for a template, if she is willing to share FACTs. M. McKinzie provided specific details of the loan program: that it will be for one year or less which will align well with the purchased acoustic receiver battery life. The language currently implies that the program is "requesting" researchers to contribute their data to a regional node, OTN or ATN DAC and was unsure if they were able to require it because it is a short-term loan and may not cover the span of the entire project. There is language about the requirements and providing data or a report of why they requested the loan, how it was used, and a project description. B. Woodward and M. McKinzie discussed that individuals would join one of the SG meetings and do a quick presentation following the loan. M. McKinzie mentioned they still need to resolve the shipping of the equipment

and it would be best that the person receiving the equipment would cover the cost of shipping to and from. M. McKinzie will send out the description and application for comments and review after the meeting. The next steps are to get approval from the SG, finalize everything, get it on the ATN website, and launch the program.

B. Woodward asked if anyone had input on the name. M. Weise favors "equipment loan program" and R. Wells leaned towards that as well or the "ATN equipment loan program". Program name is the ATN Equipment Loan Program. No objections from the group.

M. Weise stated he thinks it is okay to require people to submit data and W. Turner also agrees. It could be an incentive to bring them into the program. B. Houtman also agrees. B. Woodward asks what the hesitation was and R. Wells stated that they would be only able to supply one or two receivers and there could be obligations and restrictions with projects. S. Simmons asked if there is room in the language that they could be given priority for future equipment loans access if you share the data. M. McKinzie said that language could be added. M. Weise also mentioned it could be a criterion for selection. K. Hart suggested a quarterly report for status and constant communication with the person who has equipment. M. McKinzie suggested a draft report back form document once a quarter. B. Woodward likes this idea and stated it would be important to know if they are using it. R. Wells mentioned there is room in the budget to go to places to check-up on the equipment.

B. Woodward asked J. Young about her loan program. J. Young answered and stated FACT calls it a loaner program and OTN started the program first and initially only required the loanee to report data from the loaner equipment. The OTN changed that policy however, and now requires the reporting of data, metadata, etc., from both the loaner equipment and from any associated receivers in the study as well as tagging metadata for all animals tagged in support of the study.

B. Woodward likes the "priority will be given" language to those who agree to submit data. He asked if it would be better to ask for all of the data in the beginning for the project that this equipment is supporting. M. McKinzie is worried that if we require all of the data that would take significant time, money, and effort. If they would be willing and wanting to do that then it would be great, but it is tricky in practice. B. Woodward states that is an important point but OTN is an elaborate process with an evaluation board to make judgment calls. Maybe there is a discussion to sit down with the person requesting the receivers to make a judgement call. W. Turner said to try and adopt language of OTN for the whole program and limit your problems in the future. OTN has run the traps for us and has the language. B. Houtman said NSF requires data to be shared and if applicants are not willing their proposals are not supported.

M. Ogburn mentioned acoustic telemetry associated with OOI deployment for which he has had this exact conversation. He noted it is a big hurdle, often goes against, current user agreements and it is an ongoing discussion.

R. Wells thinks as we are dealing with less equipment it will be less complicated than OTN and this program is much simpler. J. Young asked if the plan for loan program was to stick with providing acoustic receivers and hand held receivers for finding satellite tags and not supply actual acoustic or satellite tags at the moment. J. Young mentioned this as she was originally thinking about it from the point of a tagging project. Are you asking about all of their tags or what is the process and what will it look like when we get the data? Are you asking for all of the data coming off the receivers in the project array or just off of loaned receivers? M. McKinzie said we need to discuss that and decide to request or require data. M. McKinzie asked if we could even require sharing of acoustic

data when the DAC is not set up for that data yet. B. Woodward said no. B. Woodward said it sounds like we are leaning towards "request" instead of "require" sharing of data in the language. B. Houtman said the response you get from feedback can help how you make a decision on who you approve giving the loan to. B. Woodward agrees. M. McKinzie added that we can give priority for initial loans to those whose give data. M. McKinzie asked SG members to please add edits to the documents she will send around following this meeting.

B. Woodward proposed to table this remaining discussion for the next meeting and tasks we need to put effort into and take an action item to capture the status and make some suggestions on where we can go next. B. Woodward will take on this action and put something together and send it to the SG and S. Simmons asked to make a suggestion plan to draft a one-pager that states the implementation plan will continue on for a year so that there is a record of this decision and this gives us time to revisit the implementation plan once we know more about funding. B. Woodward is happy to write that letter. Everyone is in agreement and M. Weise called for a vote by voting members for a bridge to the implementation plan stating that the current plan will be active for another year - approved by all voting members.

4:45 <u>Wrap up</u>

We identify March 2022 as the time window for next SG virtual meeting.

No other business. B. Woodward and S. Simmons thank everyone for their dedication and continuing to collaborate.