



Forth and Tay Regional Advisory Group (FTRAG) Minutes of Meeting

Meeting:	Forth and Tay Regional Advisory Group – Marine Mammal Subgroup
Location:	Teams
Date, Time:	29/11/22, 11:00-13:00
Attendees:	<p>Aimee Kate Darias-O’Hara (AKDO; SMRU Consulting), Andrew Logie (ALO; SSER), Brendan Campbell (BCA; MSS), Caitlin Cunningham (CCU; NatureScot), Cormac Booth (CBO; SMRU Consulting), Evelyn Philpott (EPH; MSS), Fiona Manson (FMA; NatureScot), Gayle Holland (GHO; MS-LOT), Grant Ellis (GEL; St Andrews University), Heather Shaw (HSH; Seagreen / SSER), Jack Lucas (JLU; MSS), Joseph Deimel (JDE; Seagreen / SSER), Joseph Onoufriou (JON; MSS), Karen Taylor (KTA; NatureScot), Kate Brookes (KBR; MSS), Madalina Matei (MMA; SMRU Consulting), Malcolm Fraser (MFR; NatureScot), Monica Arso Civil (MAC; St Andrews University), Nick Brockie (NBR; Seagreen / SSER), Polly Tarrant (Chair; PTA; EDF R / NnG), Sarah Arthur (SAR; ICOL / Red Rock Power), Sarah Canning (SCA; JNCC), Toni-Marie McGinn (TMG; MSS)</p>
Apologies:	<p>Juliet Shrimpton (JSH; Offshore Wind Industry Council), Erica Knott (EKN; NatureScot), Fiona Read (FRE; WDC), Drew Milne (DMI; MSS), Jared Wilson (JWI; MSS) Douglas Watson (DWA; Berwick Bank / SSER), Jane Renwick (JRE; MSS), Philip Hammond (PHA; St Andrews University)</p>
Minutes taken by:	Madalina Matei
Date Issued – Draft for Comment:	15/12/2022
Date issued - Final:	16/01/2022

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Minutes			
Agenda Ref	Topic	Action	Action owner
1.0	Introductions	N/A	
2.0	Previous minutes and actions		
	<p>Actions:</p> <p>NS and MSS to speak to NE, MMO and The Crown Estate (TCE) about ongoing southern range expansion of the east coast bottlenose dolphin population and potential need to expand the existing monitoring programme into England</p> <p><u>Update</u></p> <p>KBR has been in contact with Natural England and can pass on the contact details of the person leading the monitoring activities from Natural England. The area of interest for Natural England is from the Scottish Borders and down to the Farne Islands.</p> <p>NS and MSS to keep tabs on ongoing activities to make sure the right people are linked into the work.</p> <p>SMRU Consulting and MSS to arrange a meeting to commence knowledge exchange and agree broad timescales for ECOMASS data analysis.</p> <p>Update provided during the PAM update (section 4.1).</p> <p>NBR to provide UXO underwater noise report to FTRAG-MM group when available.</p> <p>UXO underwater noise report is now available on the Marine Scotland website & GHO provided the link to the report: https://marine.gov.scot/data/marine-licence-unexploded-ordnance-clearance-reports-seagreen-alpha-and-bravo-wind-area-firth</p> <p>Send any suggestions of topics/presentations for the next ScotMER Symposium to JWI or SOB – topic discussed during AoB</p>	<p>Ongoing</p> <p>Closed</p> <p>Closed</p> <p>Ongoing</p>	<p>NatureScot and MSS</p> <p>SMRUC and MSS</p> <p>NBR</p> <p>Developers /all</p>
3.0	Project Updates		
3.1	<p>Neart na Gaoithe (NnG) (PTA)</p> <p>Construction has been progressing to date, with the two offshore substation jackets (North and South) and wind turbine jackets installed. The topside of Offshore Substation South is still undergoing commissioning activity and the second topside for</p>		



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	<p>the North Substation will be arriving either later this year or early in 2023.</p> <p>The export cable was laid, buried, and protected and has been hooked-up to the offshore substations. Offshore drilling and casing installation recommenced early in the summer and are continuing within the windfarm. The first wind turbine jackets were installed in October and there are currently ten in total within the windfarm. The activities around the operations and maintenance (O&M) Base and Pontoons at Eyemouth have been completed, but official opening has been postponed until early next year. The onshore substation and export cable routes are approaching completion.</p> <p>Upcoming activities include the continuation of drilling and casing installation, the installation of Substation North, and turbine installation, thus making 2023 a very busy year – a compressed program will be followed to ensure all activities are completed by the end of 2023 or very early 2024. An updated PEMP was submitted a couple of months ago to the FTRAG group, which is being reviewed and will be re-issued for approval following this meeting.</p>		
3.2	<p><i>Seagreen (NBR)</i></p> <p>At the time of the last meeting, construction was in very early stages, with only one or two jackets in place. There has been significant progress since then, as there are now 83 jackets installed. There are currently 66 turbines installed and the target is to have 114 turbines in total installed next year, as part of the first stage of the project. The major milestone of this year was the first power export, achieved at the end of August – expectation is to have over 30 turbines exporting power by end 2022.</p> <p>About 50% of the array cables have been installed and this activity is ongoing as the jackets and turbines continue to come in. The final piece of work for the offshore part of the export cable installation has been completed, meaning that the three export cable circuits have been installed, buried and protected. The final commissioning work on the offshore substation platform will resume in the spring.</p> <p>For Stage 2, which involves the remaining 36 wind turbines, the CFD bid was unsuccessful earlier this year - the next auction will be during 2023, the Stage 2 programme will be confirmed in due course.</p>		
3.3	<p><i>Inch Cape (SAR)</i></p> <p>In July 2023 ICOL secured a CFD, a big milestone for the Project. Other significant developments since the previous meeting included the announcement of Siemens Energy and lemants, subsidiary of Smulders, for the supply and build of onshore and</p>		



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	<p>offshore substations. Vestas were selected as the preferred turbine suppliers, Montrose was announced as the O&M Base, and Port of Dundee will be the pre-assembly and marshalling site for wind turbines during construction.</p> <p>As a result of ongoing engineering works and refinement of design, ICOL are seeking to vary the existing consents. A variation to the section 36 consent and associated marine licence for the generating station is being sought to increase the hammer energy for the installation of monopiles, reduce minimum turbine spacing, and confirm the Preferred Design Scenario. Consultation is expected to commence in December.</p> <p>A variation to the OfTW Marine Licence will be sought separately.</p> <p>A first draft of the plans and programmes, and particularly the PEMP and EMP will be provided for review in advance of the formal submission in Q1/Q2 next year.</p>		
3.4	<p>Berwick Bank (ALO)</p> <p>ALO mentioned that Douglas Watson has moved on to other work within SSE and won't be involved in Berwick Bank or the FTRAG-MM any longer.</p> <p>During the last couple of months, the focus has been on preparing the consent application for submission – plan is to submit it on the 9th of December to allow MS-LOT time to go through their two weeks validation stage before the Christmas break. Since the last meeting, the site boundary has been changed to reduce some environmental impacts, although marine mammals were not the reason for these changes (main drivers were ornithology-related). The project still aims for 4.1 GW but the total boundary area has been reduced from 1,314 km² to 1,010 km².</p> <p>The project design envelope was refined to take out monopiles, floating and gravity base foundations from consideration (jacket foundations with pin piles or suction caisson are now the two options) and a commitment to use lower order techniques for the clearance of UXOs that cannot be removed or avoided. Maximum hammer energy was set to 4,000 kJ and the maximum realistic hammer energy was set to 3,000 kJ.</p> <p>The Habitats Regulations Appraisal has been prepared to be submitted with the Environmental Impact Assessment, covering the following sites: Berwickshire and North Northumberland Coast SAC (grey seal), Isle of May SAC (grey seal), Firth of Tay and Eden Estuary SAC (harbour seal), Southern North Sea SAC (harbour porpoise) and Moray Firth SAC (bottlenose dolphin).</p>		

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4.0	Monitoring Updates		
4.1	<p>Passive Acoustic Monitoring (<i>SMRU Consulting - CBO</i>)</p> <p>Rationale: PAM arrays complementing the existing ECOMMAS stations to help understand the regional scale effects of the construction of the NnG and Seagreen windfarms. This approach is meant to fill the ‘gap’ between two existing sets of ECOMMAS monitoring stations and was agreed with MS-LOT, MSS and SNH/NS in February 2019 and April 2021.</p> <p>The objectives are to characterise baseline levels of vocalising marine mammal activity and to look at changes with respect to environmental and construction covariates. There is also motivation to relate variations in underwater noise levels to specific construction activities using appropriate metrics given the suite of distinct activities happening at the two windfarms and recent published work concerning the effects of vessels and other construction activities on marine mammals.</p> <p>A combined approach is being used, which involves both CPODs (recording continuously for dolphin & porpoise clicks) and noise loggers (10 minutes on/20 minutes off & full bandwidth up to 96 kHz). The noise loggers are used for measuring noise levels and for monitoring the presence of dolphin whistles (via manual review of detections and marking of detection-positive 10-minute bins).</p> <p>The ECOMMAS data which has been planned to be included in the analysis would come from the stations between Stonehaven and St Abbs to provide additional contextual information and cover a broader area around the windfarm sites of interest.</p> <p>Data collection has been going pretty well - most stations were successfully recovered, although during the most recent deployment (March-July 2022) some noise loggers contained some acoustic signatures which indicate the potential presence of self-noise – SMRUC are currently in discussion with MSS.</p> <p>Results in terms of marine mammal detection rates were provided based on data analysed until July 2022. There was a noticeable increase in dolphin occurrence closer to shore whereas offshore detections were lower and more sporadic (similar results across the two windfarms, but significantly more dolphin detections around the Seagreen 1 and Seagreen 2 PAM stations). In terms of porpoise detections, there was a strong annual/within year pattern, with peaks in the winter months and lulls during the summer months. This pattern was particularly strong closer to shore in the case of both NNG and Seagreen. Worth noting is also the fact that whenever dolphin</p>		



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detections went up, porpoise detections went down, and this will be included as a covariate in statistical models.

Currently still collecting and processing data to prepare everything for modelling and the plan is to get ECOMMAS data analysed in a similar manner to use as input into models alongside explanatory covariates. The other task is to understand construction activities at Seagreen and NnG to choose suitable noise metrics – the infrastructure for the noise analysis is in place and the plan is to start collecting noise measurements in 2023.

Another task involves building the additional explanatory covariates which will include locational covariates (i.e., distance from shore, location/CPOD ID, latitude & longitude) as well as temporal (time of day/week of the year, time in relation to sunset/sunrise), environmental (water depth, sea surface temperature, prey abundance & distribution etc.) and anthropogenic covariates (vessel activity, received sound levels, pre-construction and construction activities) - currently coordinating with Seagreen and NnG to start mapping the construction activities and to obtain details like the number of vessels present on site and their movement.

There is also ongoing discussion with a group from the Lighthouse Field Station (working in the Moray Firth) about the covariates and approaches they have been using to align methods and enhance transferability.

SMRUC have already met with MSS multiple times this year to exchange knowledge and discuss noise metrics and the analysis of marine mammal presence. The sharing of ECOMMAS data was also discussed and agreed – porpoise detections are likely to be quick to analyse (via CPOD records) but the dolphin whistle analysis (via noise loggers) had not been planned, so further discussions need to take place to sort out resources for this task.

Future steps include the continuation of the PAM data pre-processing and the finalisation of the noise metrics and visualisation of results. Preparatory work is also underway to make sure the final analysis can happen soon after construction finishes.

Questions:

PTA brought up Cormac’s question regarding the resourcing of the ECOMMAS PAM data analysis and mentioned that the Seagreen & NnG stations were originally designed as extensions



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	<p>of the ECOMMAS programme to provide additional context for the analysis.</p> <p>CBO provided locations and dates from the ECOMMAS dataset that would be used for the analysis (April 2019 until the end of the construction monitoring from Stonehaven, Arbroath, St Andrews and St Abbs)– both CPODs and noise loggers would be required, resulting in a very large dataset that would need to be processed.</p> <p>KBR provided more context – MSS have a plan for the whistle analysis, but they do not intend to do this within a timeframe that is useful for the current projects as this work is not currently prioritised. Therefore, MSS are happy to send the data to SMRUC who would do the analysis, but enough time needs to be provided for this task.</p> <p>PTA also emphasized the size of a dataset that spans 4-5 years and includes multiple stations and asked how the analysis could be achieved in a realistic manner.</p> <p>CBO brought up concerns regarding the lack of statistical power at a regional scale, if only NnG and Seagreen data were to be used, especially for dolphin detections given the limited performance of CPODs, reason why the additional ECOMMAS datasets would be particularly valuable.</p> <p>KTA asked if an action could be created to discuss ways to process the ECOMMAS data (MSS & SMRUC). CBO could provide estimates for the analysis time and amount of data to be processed.</p> <p>ACTION: MSS, NatureScot and SMRUC to further discuss ways to process the ECOMMAS data.</p> <p>ACTION: CBO to provide estimates for the analysis time, amount of data to be processed, and future uses for the analysed data.</p> <p>PTA mentioned timelines of pre-construction & construction passive acoustic monitoring and asked for how much more time developers need to monitor after construction – NnG intend to take responsibility until construction ends to compare pre-construction & construction periods. Once the responsibility to maintain the moorings has ended, the CPODs, noise loggers and the remaining equipment, will be handed over to MSS to facilitate continued data collection at these locations, alongside the wider ECOMMAS array, if desired.</p> <p>NBR mentioned on behalf of Seagreen that PAM gear would be recovered following the completion of the Stage 1 installation work (expected recovery date & end of supported monitoring</p>	<p>Open</p> <p>Open</p>	<p>MSS NatureScot SMRUC</p> <p>CBO</p>
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	<p>work around July). Need to start thinking about what happens next.</p> <p>KTA asked the developers to provide dates for end of construction & end of involvement in monitoring to NatureScot.</p> <p>ACTION: PTA and NBR to provide dates for the end of construction and involvement in monitoring activities to NatureScot via email.</p> <p><i>[Post meeting update – email sent to FTRAG-MM 30.11.22 -main headline from the email:</i></p> <p><i>“For Seagreen, with a currently anticipated operational date of June 2023, Seagreen will take responsibility for the maintenance of its five PAM moorings until the second sailing in 2023 – likely to be July 2023.</i></p> <p><i>For NnG, with the wind farm due to be fully operational by January 2024, NnG will take responsibility for the maintenance of its four PAM moorings until the first sailing in 2024, expected to be in March 2024”]</i></p> <p>PTA and NBR informed the group that all four NnG moorings and the five Seagreen moorings were recovered over the previous weekend, during the November 2022 sailing. JLU confirmed that MSS are currently preparing the data to be sent to SMRUC.</p>	<p>Closed</p>	<p>PTA, NBR</p>
<p>4.2</p>	<p>Bottlenose dolphin ID (St Andrews University - GEL)</p> <p>Between May and September 2022 there were 28 boat-based surveys conducted, starting from Tayside and generally going north up to Arbroath (and sometimes as far as Montrose) and then south to St Andrews Bay and into the Firth of Forth – protocol standardised as part of the long-term collaboration with the University of Aberdeen Lighthouse Field Station.</p> <p>There were 75 bottlenose dolphin encounters (compared to 42 encounters in 2021), with the majority concentrated around the mouth of the river Tay. Out of the 190 hours spent in total on survey, 42 hours were spent on encounters. Additional cetacean encounters involved minke whales and harbour porpoises. Next year the same effort will be repeated between May and September 2023 as part of the final field season.</p> <p>There were 11,500 photographs taken of single or multiple dorsal fins which will be graded using SMRU criteria of quality and then matched to individuals. Final confirmation will then be performed by SMRU and the Lighthouse Field Station as part of the long-term photo-ID protocol. In 2021, around 140</p>		



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individuals were matched to the catalogue from the SMRU surveys.

The range expansion of bottlenose dolphins into the Northeast (NE) of England motivated the launch of the Citizen Fins project in 2020 to collate citizen science data and gain a better understanding of the movements of animals across the border from Scotland and England. Submissions are processed by SMRU and matches are confirmed with contributors. Between September 2020 and October 2022 there were 206 encounters submitted resulting in over 2400 photos from which 99 catalogued animals could be identified from the East Coast population. 83% of submissions were from NE England, which allowed the identification of around 40 individuals in this region alone. Lots of submissions from NE England in 2022 (71) and the project is likely to become particularly relevant with upcoming offshore windfarm developments proposed in this region.

Example of combined output from SMRU surveys & Citizen Fins data – the tracked movements of the individual Singers: spotted by SMRU during 2021 surveys and sightings reported via Citizen Fins from the Firth of Forth and Firth of Tay as well as reports from the Lighthouse Field Station off the Moray Firth. The additional data from Citizen Fins provided valuable information regarding the movements and distance travelled by specific individuals.

Another example involved the 1051 individual that used to be seen regularly by SMRU and Lighthouse Field Station surveys until about 2017 and has now been regularly sighted off NE England since 2020. This individual was re-sighted by SMRU in 2022 alongside other dolphins from NE England Citizen Fins submissions.

SMRU were invited to an outreach event as part of the Hull Science Festival in September 2022 where GEL and Jennifer Coxon ran a photo-ID 'Name a Dolphin' competition.

Questions:

KTA asked if photos are ever submitted from north of Moray Firth or Pentland Firth?

MAC confirmed that there were entries from these locations, but focus is currently on locations further down south, as there is already awareness of dolphin presence further up north. Focus is therefore concentrated on areas that are less understood to avoid processing hundreds of entries from popular areas (i.e., around Moray Firth) but interesting

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	<p>movements have been recorded around Aberdeen, so submissions are still encouraged from this area.</p> <p>NBR highlighted that all data from contracts with either SMRU Consulting or St Andrews University will be pulled together for the final analysis.</p> <p>MAC confirmed that all four years of data will be used for the analysis, but this dataset will also be used for long-term monitoring alongside data from the Lighthouse Field Station.</p> <p>Data collected this year now need to be processed and in coordination with the Lighthouse, the annual survey report will be provided next year.</p> <p>2022 was year 2 of 3 years (contractually). The first year of surveys supported by Seagreen, Neart na Gaoithe and Inch Cape was 2020. Analysis and results for all 4 years of data will be in the final report.</p>		
5.0	<p>Lessons learnt/results sharing</p> <p>KBR said that MSS are keeping the ECOMMAS work going and planning possible expansions but there are no clear actions defined yet, as there is no funding yet available.</p>		
6.0	<p>Strategic Marine Mammal monitoring updates</p> <p>PrePARED was brought up by PTA, to make people aware of the project and that the PAM data from the F&T will feed into the project. There will be knowledge exchange meeting and a workshop scheduled, expected to be in February 2023 as part of the project, which may include some of the attendants.</p>		
7.0	<p>AoB / next meeting</p> <p>PTA asked if it is valuable to meet again during the spring – SMRUC likely to have finished some covariate work</p> <p>No expectations from SMRU on photo ID to provide updates</p> <p>NBR supports this idea – Seagreen expect to have a clearer idea regarding the end of construction activities</p> <p>ACTION: PTA to figure out who is the next organiser across developers</p> <p><i>[Post meeting update, next organiser will be Seagreen (NBR)]</i></p> <p>Next ScotMER Symposium – end of January/late Feb/March</p> <p>GHO said they are busy drawing the program at the moment and will get in touch with the developers if marine mammal slots become available</p>	Closed	PTA



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	<p>KBR mentioned that there were only a few projects that were meant to be included but discussion is ongoing regarding what additional projects will be discussed.</p> <p>JON said the focus work around NnG & Seagreen has been proposed but rather as part of a greater ECOMMAS discussion (no exclusive topics around the Firth of Tay have been suggested)</p> <p>PTA emphasized that there are not many explicit results to share so might be more appropriate to be part of the wider ECOMMAS discussion instead.</p>		
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