

MINUTES OF MEETING

MeyGen Advisory Group_16

Virtual Meeting

Wednesday 23rd June 2021

Attendees

MeyGen

Anna Dunbar (AD)

Fraser Johnson (FJ) joined for second half

MSLOT

Rebecca Bamlett (RB)

Gayle Holland (GH)

Mark McCormack (MM)

MSPP

Janelle Braithwaite (JB)

MSS

Ross Culloch (RC)

Ross Gardiner (RG)

Jack Lucas (JL)

Jared Wilson (JW)

NatureScot

Chris Eastham (CE)

Karen Hall (KH)

SMRU

Douglas Gillespie (DG)

Gordon Hastie (GH)

Carol Sparling (CS)

UHI

Benjamin Williamson (BW)

Apologies

Kate Brookes - MSS

Erica Knott - NatureScot

Marc MacFarlane - MSLOT

Beth Scott - UoA

Elaine Tait - MSPP

1. MeyGen Operational Update

- See slides for update

2. Outcomes of previous monitoring – SMRU

- CS to circulate summary slide. Most of the group had seen results through other steering groups so no further discussion required. CS will circulate papers as soon as they are published.

3. PEMP Update

3.1. Status

- See slides

3.2. Strategic Research – Fish monitoring

- JW: Harbour seals are critical to further build out at MeyGen but to date no data have been collected at the MeyGen site. Before moving onto fish discussion, is there confidence that NERC platform will be successful?
- DG: clarified in FJ absence that unsuccessful deployment of NERC platform was covid related - usual fitters were not available and quality assurance issue in cable connector was identified as root cause - no fundamental issue with platform. Although this cannot ultimately be proven until it is installed and operational, there is confidence that it will be successful.
- BW: As discussed at previous advisory group meetings, clarify the slides that the FLOWBEC baseline survey (2015, pre-turbines) was successful, together with the 2016 (pre) and 2018 (post-turbine) mobile surveys. The cabled FLOWBEC monitoring campaign was unsuccessful at MeyGen due to connection issues in the turbine, not issues with FLOWBEC which was still operational upon recovery, 21-months later. Previous FLOWBEC monitoring campaigns in other sites have also been successful and papers published showing changes in fish school characteristics due to a turbine support structure, and demonstrating the techniques to track changes in animal (including fish) movement and behaviour throughout the water column around a TSS. FLOWBEC has not yet been deployed with operational turbines. Links to relevant papers below.

Application of a multibeam echosounder to document changes in animal movement and behaviour around a tidal turbine structure (2021, ICES Journal of Marine Science)

<http://doi.org/10.1093/icesjms/fsab017>

Predictable changes in fish school characteristics due to a tidal turbine support structure. (2019, Renewable Energy). <http://doi.org/10.1016/j.renene.2019.04.065>

Combining acoustic tracking and hydrodynamic modelling to study migratory behaviour of Atlantic salmon (*Salmo salar*) smolts on entry into high-energy coastal waters. (ICES Journal of Marine Science, 2021). <http://doi.org/10.1093/icesjms/fsab111>

- AD: MeyGen seeks guidance on what monitoring is required in relation to fish given feedback on PEMP that contribution to strategic research may not be sufficient.
- RG: MSS would like to see commitment to monitoring near field fish interactions with the turbine. There are limited opportunities to gather data from operational turbines and so this should be carried out.
- BW: Although invaluable for target identification, given experience at the MeyGen site with large turbines and visibility at peak flow, suggest video recording is not the most appropriate method, if the objective is monitoring near-field behaviour across the rotor-swept area, irrespective of visibility, illumination and flow speed.



- FJ: It could be possible that the NERC platform could be used as platform to provide power to additional monitoring equipment.
- CS: Multibeam sonars already present on NERC platform could be used to detect fish, but it would need dedicated resource to evaluate and analyse, as it is not within SMRU remit.
- DG: The sonars are positioned 30m from the turbine, which is optimised for seal detection rather than fish so it may prove limited for appropriate fish range / not provide spatial coverage required, but potentially worth investigating.
- BW: In the original PEMP, FLOWBEC and HiCUP were both proposed as they had different monitoring equipment for different purposes. Can provide advice on specific details, but regarding fish monitoring, FLOWBEC included full water column detection and tracking across flow speeds, with robust discrimination using a different, integrated instrument suite.
- JB: Requirement to clarify exactly what research questions we are aiming to address, what monitoring is needed and for how long. Once this is known, there may be funding that could be accessed e.g. ORJIP Global Environmental Fund.
- AD: it is not clear to MeyGen what we are specifically seeking to achieve with the fish monitoring campaign.
- General agreement that PEMP V4 needs to be revisited to look at specific objectives relating to near field fish interactions. This should be compared to OES State of the Science report to see if any objectives have been met through other research over past 5 years and then remaining knowledge gaps identified.

- JW: It should be investigated if existing equipment can be used to monitor near field fish interactions before any alternative routes are pursued.
- **Action MeyGen:**
 - Produce requirements report to summarise objectives of near field fish monitoring based on PEMP V4 updated in response to OES state of the Science.
 - Review what options exist to carry out monitoring at MeyGen - potential using existing NERC equipment vs alternatives.
 - Present to MSLOT for consultation by wider group.
 - Once requirements document is agreed, further discussion required on potential sources of funding and how these objectives should be addressed in the PEMP.

3.3. Reporting

- See slides for reporting proposed by MeyGen.
- CE: Concern that there could be a substantial delay if advisory group is required to wait for official publications before findings can be shared. This has potential to delay further development at the site.
- CS/DG: This is a risk but any findings that can be shared with confidence will be disseminated through the MMSS steering group and onto Advisory Group where possible. When looking at rare events, it is important to consider the full 12-month monitoring period. Frequent intermediate reporting would not be appropriate. It is important that expectations are managed in respect of this.
- GH: it is important that this mechanism and frequency of reporting is reflected accurately in the PEMP as MeyGen will be held to account for its compliance with this.
- RC: With previous reporting there have been differences in expectations which had led to pressure on SMRU to share results out with their funded programme. Clarity on reporting lines and expectations in the PEMP is welcomed.
- Agreement that proposal put forward by MeyGen for reporting should be included in PEMP.
- CE: it would be useful for results on collision risk to be collated and used to produce some guidance for developers moving forward
- JB: One of the work streams being discussed in ORJIP OE is the production of guidance notes that could contribute to fulfilling this purpose.
- AD: MeyGen is working with ORJIP and will support this process.
- **Action MeyGen:**
 - Update PEMP with reporting proposal and other minor changes presented.

4. Seal Entrapment Risks

- RB: 3 dead seals have been found in open J-tubes during construction of an offshore wind farm. Seeking experience and feedback from advisory group on general awareness of this issues.
- GH: aware of seals getting stuck in offshore floating platforms used for buoyancy control.
- FJ: Highlight geometry of turbine support structure and question if this is of concern. Smallest opening at the top is >800mm. when turbine is removed, these openings are exposed for periods of several months at a time. There is clearance at the base of the support structure for seals to escape if they cannot navigate back out of the top.
- JL: For the J tubes - the tube mouth was approximately 40-50cm, tube internal diameter was approximately 30-40cm, from memory. I think there was also an export tube around 65cm, but that was capped.
- Agreement that turbine support structure is not an immediate concern. Would be ideal if it could be capped, but not practical to carry out remedial work subsea. Potential to cap with grid for future installations.