



Arklow Bank Wind Park 2

Environmental Impact Assessment Report

Volume III, Appendix 13.3: Offshore Bat Survey 2021 Technical Report

Statement of Authority

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ARKLOW OFFSHORE BAT SURVEY 2021

Technical Report

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1 INTRODUCTION

RPS Group Limited (RPS) was commissioned by Sure Partners Limited to produce this report to inform ecological baseline in relation to bats in the offshore environment.

1.1 Scope

There is no empirical evidence of bats in the offshore environment in the Irish context, due primarily to the lack of survey/research being completed for this species group within the marine environment. There is increasing evidence of bat activity in the marine environment in the European Context e.g. from the North Sea and Baltic Sea.

In order to start to address to the lack of empirical evidence in the Irish context, the objectives of the survey are to:

- Identify any offshore bat activity in the vicinity of the monopile structure (Figure 1.1) located approximately 8 km offshore and to the east of Arklow within the Irish Sea (ITM 739750, 683638); and
- Identify whether there is any seasonality in the survey data which may indicate evidence of migration and/or offshore foraging/commuting activity within the vicinity of the monopile structure.



Figure 1.1 Offshore monopile structure

1.2 Limitations

1.2.1 Survey methods

Currently, there is a lack of bat surveys/research being completed within the marine environment, particularly within the Irish marine environment. There are no standard survey methods or guidelines in Ireland or

internationally for characterising offshore bat activity which can be implemented; however, existing UNEP guidelines recommend surveying offshore wind turbines in the same manner as land-based turbines¹.

1.2.2 Data capture

There were loss of data from both of the detectors due to periodic equipment malfunction. There are challenges associated with the use of survey equipment in the marine environment. The rapid changes in weather or harsh conditions which occur offshore may lead to the malfunction of instruments.

¹ Rodrigues, L., Bach, M.J., Dubourg-Savage, B., Karapandza, D., Kovac, T., Kervyn, J., Dekker, A., Kepal, P., Bach, J., Collins, C., Harbusch, K., Park, B., Micevski, J., Minderman (2015) Guidelines for consideration of bats in wind farm projects, UNEP-Eurobats, publication No 6. Revision 2014. UNEP/EUROBATS Secretariat: Bonn, Germany.

2 METHODOLOGIES

2.1 Deployment Method

The equipment was deployed on 27 May 2021 to monitor the bat activity in the vicinity of the monopile offshore from Arklow Bank. Two Song Meter SM4BAT FS Bat Detectors, each held within an IP67 armoured case, were used, in combination with SMM-U2 Ultrasonic Microphones. The setup up before deployment can be seen in Figure 2.1. The equipment was prepared by an experienced ecologist (The preparation of the boxes and detectors can be viewed in **Appendix A**). A marine contractor, Alpha Marine, completed the installation of the equipment on the monopile during daylight hours and under the remote supervision of the experienced ecologist. They were briefed on the following:

- The equipment and its operation (including sensitivities relating to batteries, memory etc); and
- The deployment of the equipment.

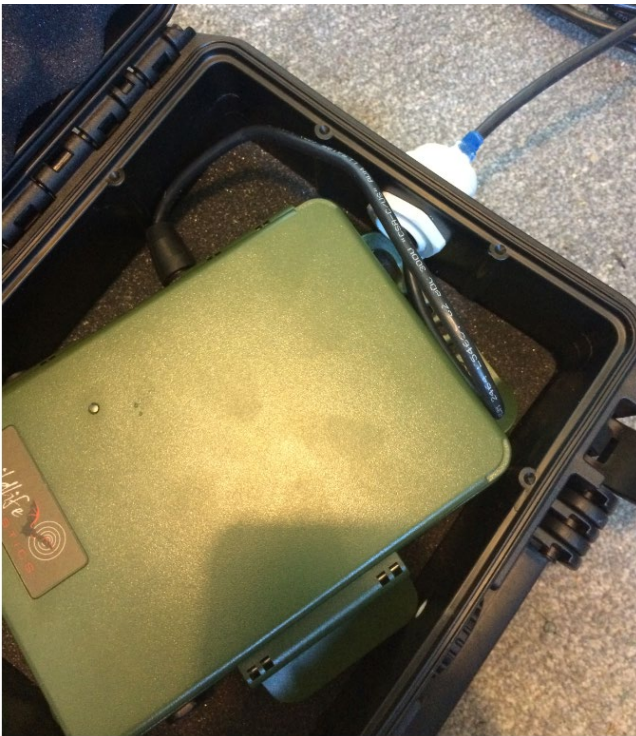


Figure 2.1 Equipment as deployed: Song Meter SM4BAT FS Bat Detector, held within an IP67 armoured case and an SMM-U2 Ultrasonic Microphone

The detectors and their associated armoured cases were secured to the top platform of the monopile using ratchet straps. The two microphones were secured on the safety railing of the platform, pointing out in a northerly and southerly direction. The cable lead of the microphone was cable-tied to secure it (Figure 2.2, Figure 2.3).

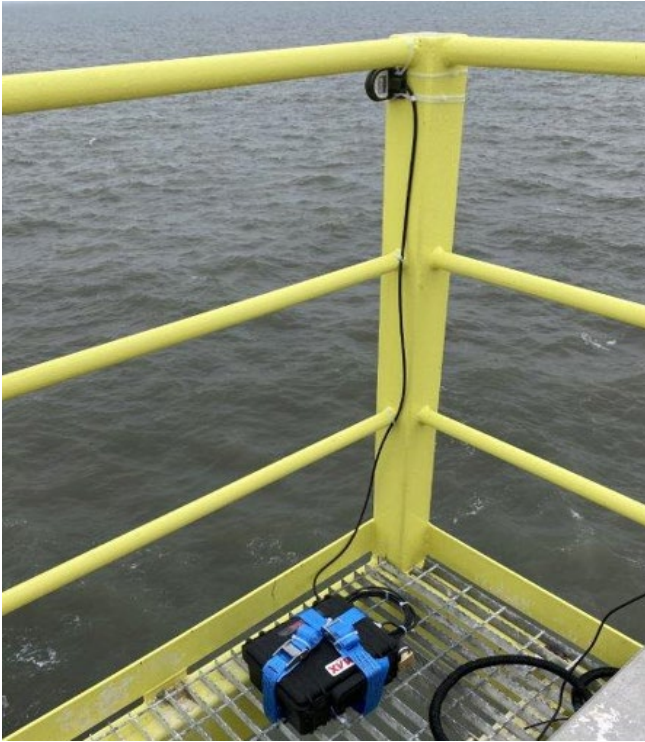


Figure 2.2 Photograph to illustrate the placement of the bat detector on the platform



Figure 2.3 Photograph to illustrate the placement of the bat detector on the platform

2.2 Maintenance

Maintenance visits were carried out periodically by Alpha Marine to replace the batteries and SD cards on the detectors. This enabled RPS to check the functioning of the equipment, and to assess the recorded data during the monitoring period (May-Oct). The Alpha Marine team were trained by experienced RPS ecologists on ongoing maintenance and management of the equipment. During each maintenance visit, Alpha Marine checked:

- Battery status;
- SD cards status; and
- Recording schedule.

The detailed protocols for replacing the internal batteries and SD cards are outlined in **Appendix B**. This is a step-by-step process, to ensure that the maintenance of the equipment was correct and consistent throughout the monitoring period.

2.3 Data Analysis

After each maintenance visit, data SD cards were transferred from Alpha Marine to RPS. The recorded data was analysed using Kaleidoscope (Wildlife Acoustics, Inc.) sound analysis software. Determinations of species identification and activity were made by suitable qualified and experienced RPS ecologists.

3 RESULTS

3.1 Data Capture

The dates of operation for both of the detectors was from 27 May 2021 to 17 November 2021. There were five maintenance visits throughout the monitoring period. The Alpha Marine team followed the guidelines and protocols from RPS for maintaining and deploying the equipment. The dates of the maintenance visits can be seen below in **Table 3-1**. It can also be noted that the equipment malfunction was discovered for the north facing detector after the fourth maintenance visit. Therefore, there was a loss of data between 11 August 2021 and 20 September 2021 for the north facing detector. Data capture reductions were also evident for both detectors from 20 September 2021 until the collection of the equipment on the 17 November 2021. No water egress into the waterproof boxes was noted during the maintenance visits. The equipment was returned to RPS after the monitoring period had finished (see **Figure 3.1**).

Table 3-1 Visits during Monitoring Period.

Visit Type	Date	Data Capture (no. of files)	
		North facing	South facing
Deployment	27/05/21	-	-
Maintenance	15/06/21	297	284
Maintenance	01/07/21	202	303
Maintenance	11/08/21	488	434
Maintenance	20/09/21	-	253
Maintenance	14/10/21	12	3
Collection	17/11/21	3	262



Figure 3.1 Equipment in returned state. The armoured boxes were heavily fouled by bird guano.

3.2 Bat Recordings

Bat activity was recorded during the survey. The results from the survey can be seen in **Table 3-2** below. The detectors recorded two bat species; Leisler's (*Nyctalus leisleri*) and Common pipistrelle (*Pipistrellus pipistrellus*). Commuting and feeding behaviours were noted from the data collected.

Table 3-2 Bat recordings detected in the vicinity of the monopile during the monitoring period (May-Nov 2021).

Detector	Date and time	Species	Behaviour
North	18 July 2021 00:32:39	Leisler's (<i>Nyctalus leisleri</i>)	Commuting
South	18 August 2021 21:28:58	Leisler's (<i>Nyctalus leisleri</i>)	Feeding
South	18 August 2021 22:48:32	Common pipistrelle (<i>Pipistrellus pipistrellus</i>)	Feeding
South	18 August 2021 22:48:53	Common pipistrelle (<i>Pipistrellus pipistrellus</i>)	Feeding
South	18 August 2021 23:55:34	Leisler's (<i>Nyctalus leisleri</i>)	Commuting

4 CONCLUSION


The findings of the survey confirm the presence of two bat species bats in the offshore environment and within the vicinity of the Monopile. To RPS's knowledge, these are the first recorded occurrences of bat species activity in the offshore in the Irish marine environment. Both bat feeding and bat commuting behaviours were identified. It is not known whether the commuting behaviours are linked to migration (along the Irish coast or between Ireland and the UK) or due to bats moving from the Irish mainland offshore for foraging purposes. The timing of the records would indicate commuting rather than migration. Further offshore bat surveys are recommended to add to the available empirical data and such surveys are likely to indicate the periods in which bats are most likely to be present, migration routes and timing, and weather condition preferences. In addition, learnings from the challenges experienced during the data collection should be applied during the design of any further offshore bat surveys.

Appendix A

Preparation Method

Song Meter SM4BAT FS
BIOACOUSTICS RECORDER

Press SCHEDULE START
to begin or left
arrow to go back.

 CHECK
STATUS



SCHEDULE
START



 SCHEDULE
STOP



Song Meter SM4BAT FS

BIOACOUSTICS RECORDER

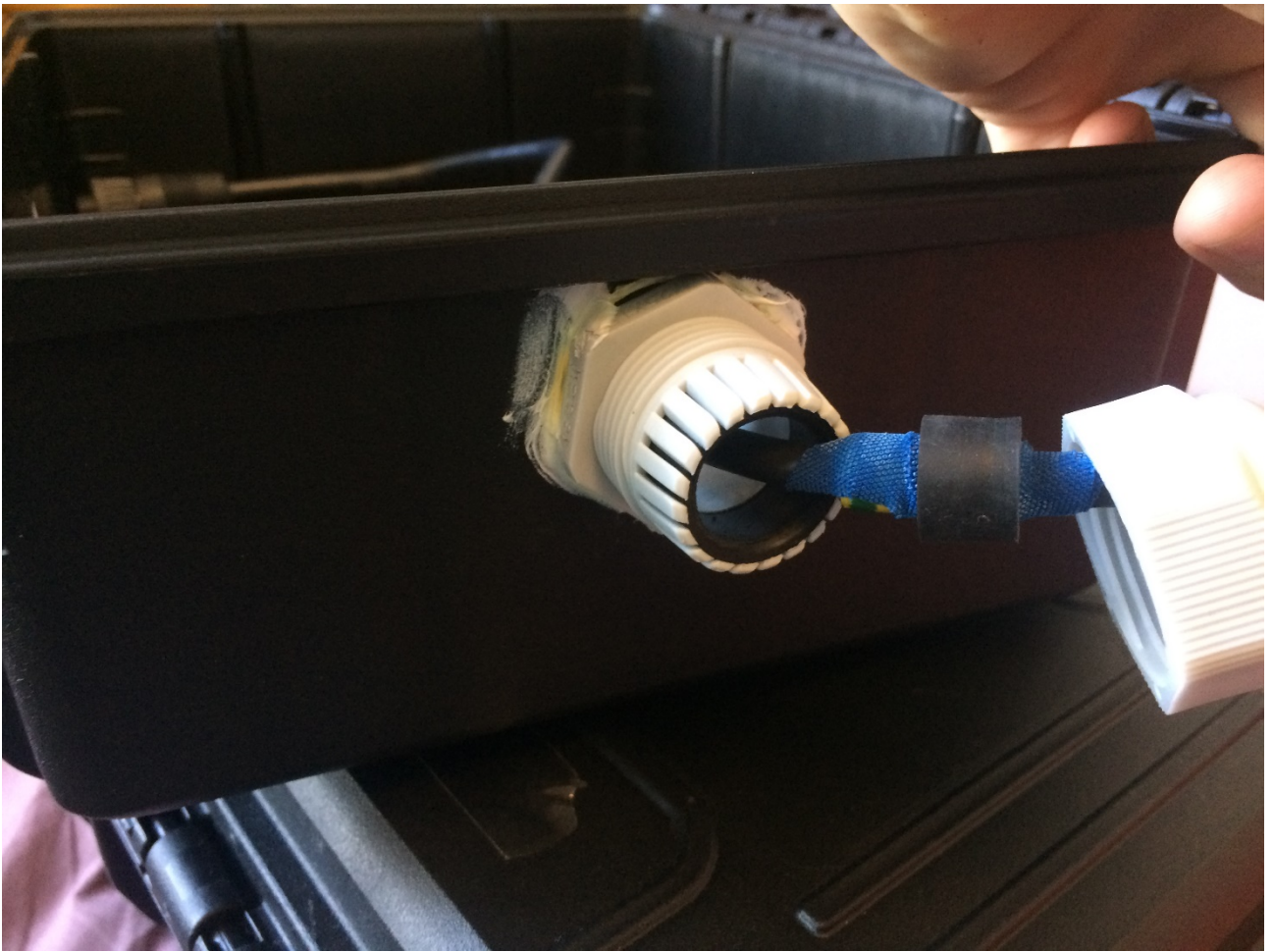
Overwrite schedule?

-No

☒ Yes

CHECK
STATUS







Song Meter SM4BAT FS

BIOACOUSTICS RECORDER

Main Menu
■ Quick Start
- Settings
- Schedule

Song Meter SM4BAT FS

BIOACOUSTICS RECORDER

2021-May-21 21:10:35

R:2.3.3 Mic:U2

SDA: 0/64 B: 0/64


Bat: 5.3V Temp:20.50



Song Meter SM4BAT FS

BIOACOUSTICS RECORDER

Press SCHEDULE START
to begin or left
arrow to go back.

 CHECK
STATUS



ENTER
MENU



SCHEDULE
START



SCHEDULE
STOP







Song Meter SM4BAT FS

BIOACOUSTICS RECORDER

2021-May-21 21:10:26
Currently Recording:
A 21:09-05:46 #000000
ARMED @ SR=256k



Song Meter SM4BAT FS

BIOACOUSTICS RECORDER

Press SCHEDULE START
to begin or left
arrow to go back.



Song Meter SM4BAT F

BIOACOUSTICS RECORDER


2-Record Start
2-Record Sunset+Rise
2-Record Sunset+Rise
2-Record Always



Song Meter SM4BAT FS

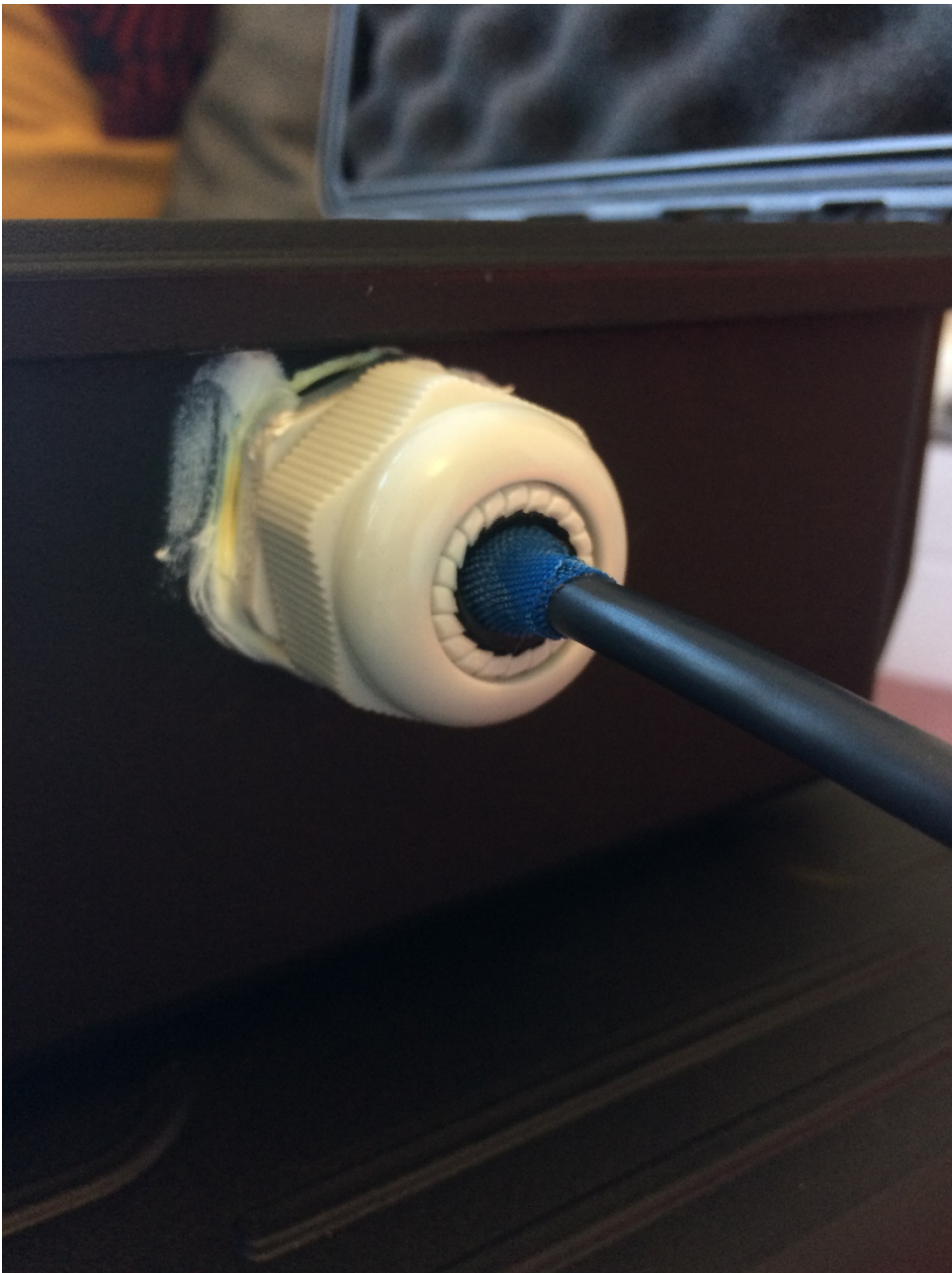
BIOACOUSTICS RECORDER

Overwrite schedule?
-No
■Yes

 CHECK
STATUS










Song Meter SM4BAT FS


BIOACOUSTICS RECORDER

Press SCHEDULE START
to begin or left
arrow to go back.

 CHECK
STATUS



SCHEDULE
START

 SCHEDULE
STOP

ENTER
MENU

Appendix B

Maintenance Protocol

REPLACING INTERNAL BATTERIES AND SD CARDS



1. Open the waterproof case by unlocking the padlock and unhooking the two latches.
2. Open the recorder by releasing the side latch (illustration above).
3. Press **schedule stop** button (red square).
4. Turn off power - slide the power switch to **EXT**.
5. Open battery area by depressing **thumb lock**.
6. Remove existing batteries and insert new batteries with their polarity (+/-) orientation as shown on the battery bay markings.
7. While battery area is open, remove existing SD cards (Slot A and B) by push release – N.B. the push release springs are weak and you may need to use your thumb nail to pull cards out.
8. Insert new SD cards (Slot A and B) – make sure that the SD cards are fully inserted. This can be verified through 'check status' function at later stage.
9. Close the battery area and gently press down until it snaps into place.
10. Turn on power, slide the power switch to **INT**.
11. Press the **CHECK STATUS** button (located below the screen to the left) to assess the following parameters:
 - **Date and time**: date and time should be correct
 - **Mic**: 'U2' should be displayed
 - **SDA**: '0/64' should be displayed
 - **B**: '0/64' should be displayed
 - **BAT**: Voltage (v) should be greater than 5
 - **TEMP**: should be less than 35

The check status screen (see below) will display for several seconds before reverting to the main settings menu. You can repress the **CHECK STATUS** button to display the status again.



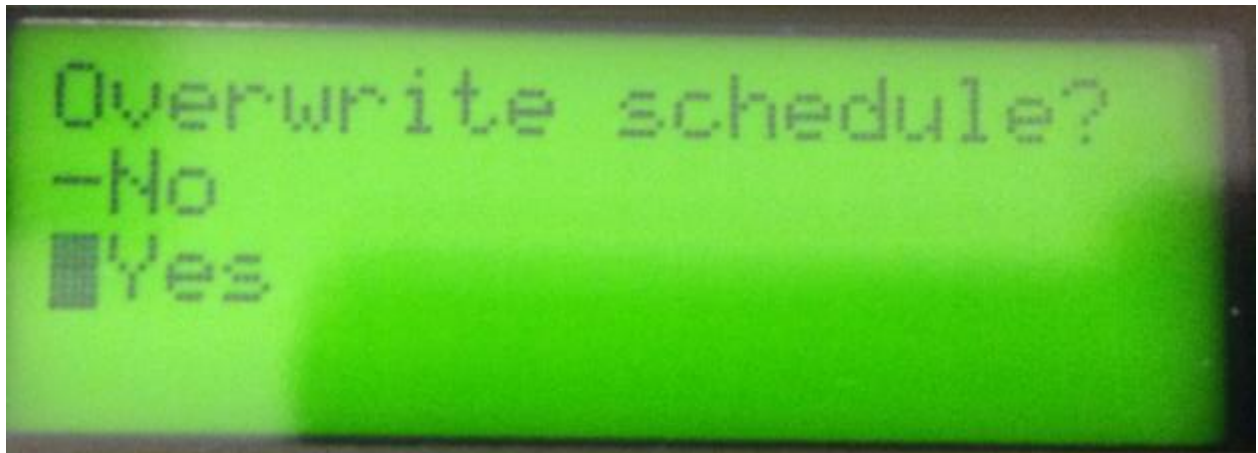
12. On the **Main Settings** menu (which is displayed as default), select the '**Quick Start**' option using the **ENTER** button.



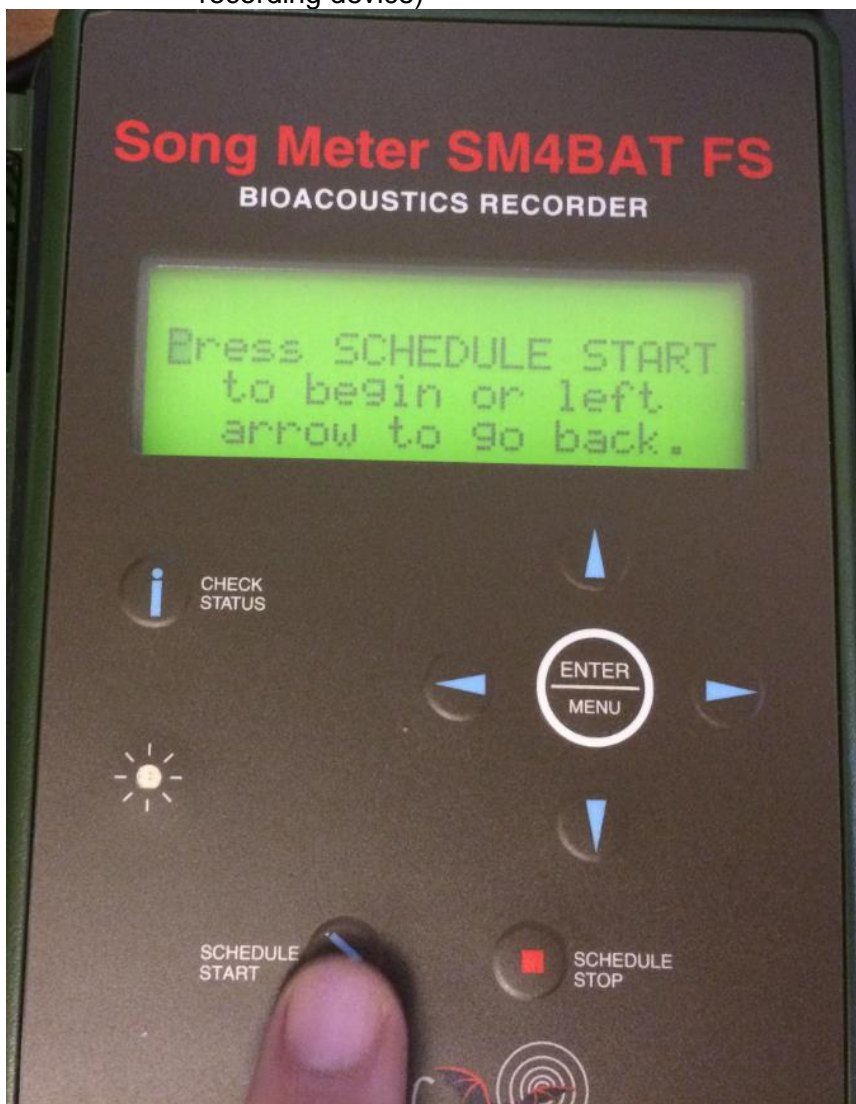
a. Use the **down arrow** to navigate down to **Record-30Set →+30Rise**, and select this option using the **ENTER** button



b. When asked to 'Overwrite schedule', navigate down to '**Yes**' and select this option using the **ENTER** button



- c. Press the **SCHEDULE START** button (located at the bottom right of the opened recording device)



13. Close the recorder (snap close between latch and lock ring) and place the recorder into the weatherproof box at a diagonal (see below). Close the weatherproof box, refasten the two latches and secure the padlock.



14. Safety transport SD cards and batteries (e.g. within weatherproof bag) to shore for transfer to RPS staff.