

**NWIFCA Technical, Science and Byelaw
Sub-Committee**

6th November 2015: 10:00 a.m.

**AGENDA
ITEM NO.**

8

USE OF DRONE FOR PRE-SURVEY

Purpose: To inform Members of the trial of a drone carried out in partnership with representatives of the RSPB, as a tool for pre-survey assessment of a mussel fishery.

Recommendations

- 1. That Members approve the work of Officers**
- 2. That Members approve the purchase of one of the drones recommended for the use in pre-survey assessments of fisheries.**

Background

- Drones and other unmanned aerial vehicles (UAV) are being used more regularly for surveying as UAV technology has improved. This is due to the reduction in price, size and weight, the increase in flight time, coupled with the ability to survey from a height and the quality of data which can be obtained.

Test Flight

- On the 30th September 2015 Science Officers Knott and Haines met with representatives of the RSPB, David Morris and Calum Booth, to investigate the practical uses of a drone as a form of pre-survey assessment of a mussel fishery.
- The flight was carried out on Heysham Flat Skear at low tide over the mussel bed. The drone was a DJI Phantom II fitted with a GoPro that was linked to a hand held monitor for live video feed. The GoPro recorded footage and captured a still image every 5 seconds.
- It was observed that bird disturbance was at very low levels. A flock of knot were not disturbed even though they were in close proximity to the drone.
- The drone was easy to fly and has very good stability and range.

Video Footage

- The video footage was later reviewed and was of high quality and clarity. The real use application of a drone would be for a pre-survey assessment on particular mussel beds. The range of the drone allows for the assessment of a large area in a relative short amount of time compared to a walk over survey.
- A short presentation showing the quality of video and still imagery will be shown at the TSB meeting.

Recommended Models

8. There are two recommended models and the breakdown of the costs are provided in Annex A. The price includes all the equipment needed including extra batteries, carry cases and assembly costs. This is to ensure models are immediately ready for use. Table 1 shows the comparisons of the two recommended models.

Table 1. Comparison of the two recommended drone models

	Phantom 2	Phantom 3
Total Price	£1,809.68	£2,032.00
Max flight time on one battery	25 minutes	23 Minutes
Camera	GoPro No GPS functions	Internal Camera GPS functions but cannot overlay on to video
Monitor / Tablet	Simple monitor available	Using an external tablet for live video feed, currently not tested with rugged tablets

Legal Requirements

9. The use of UAVs is governed by the Civil Aviation Authority's (CAA) Air Navigation Order 2009 (ANO). The use of a drone has to comply with Articles 166 and 167 of the CCA-ANO provided in Annex B.
10. Summary of CAA Requirements for aircraft 20Kg or less:
- The pilot must retain visual contact with the UAV at all times, sufficient to avoid collisions with persons or property – this is within 500m horizontally and 122m vertically.
 - The pilot directly operating the UAV has responsibility to ensure legal compliance of the use of the aircraft.
 - CAA permission is required for all flights that are being conducted for aerial work (paid work).
 - Cannot fly:
 - in Class A, C, D, E (controlled airspace) or within an aerodrome traffic zone airspace unless permission from air traffic control;
 - over or within 150 metres of any congested area;
 - 50m of any vessel, vehicle or structure which is not under the control of the person in charge of the UAV;
 - 50m of any person when flying or 30m when taking off or landing other than the person in charge of the UAV.

11. Other Requirements:

- Risk assessment and standard operating procedure (SOP) – The RSPB have provided a copy of the RA and SOP they currently use which could be adapted for NWIFCA purposes.
- Data Protection – Images captured of identifiable individuals cannot be used unless written permission is obtained.
- Statutory Consents – Potential to disturb protected species.
- Third Party Land – Authorisation needs to be obtained.
- Insurance – David Morris has been through the process of getting insurance and has offered his assistance and does not anticipate any insurance issues.

Jonathan Haines – Conservation and Environment Advisor
24th October 2015