

ECOPredS Standard Operating Procedure (SOP) for drone flights

To participate in the ECOPredS study, we ask drone pilots to adhere to the following:

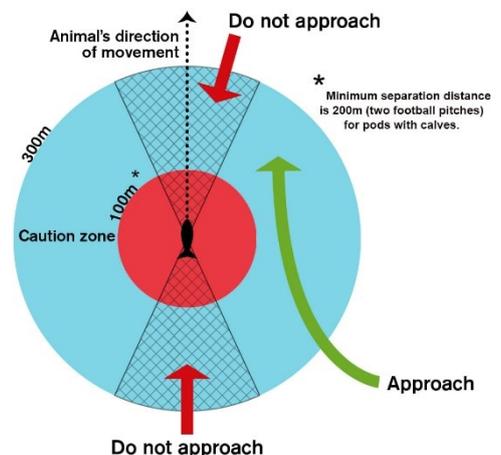
1. All drone pilots and equipment must be registered and validated with the UK DMARES (Drone & Model Aircraft Registration and Education Scheme).
2. Adhere to the law, recommended flying parameters and operating procedures set out within the flight class they are legally permitted by the CAA (Civil Aviation Authority).
3. Submit a copy of your CAA qualification (e.g. A2CofC, PFCO, GVC etc) to the ECOPredS coordinator. The minimum requirement is A2 certificate of competency (A2CofC), which allows you to fly in the A2 open category ('close to' people).
4. Consider animal welfare at all times and agree to adhere to guidelines and laws set out in *A Guide to Best Practice for Watching Marine Wildlife* and *The Scottish Marine Wildlife Watching Code* published by Nature Scot. This is applicable to both ground and airborne activities travelling to, within and on departure from operating sites. Animal welfare is not exclusive to the target species and consideration must be made for colonies of breeding birds (e.g. Arctic Terns), seal haul outs and any other species that could be disturbed by an operational drone (e.g. Oystercatchers, gulls etc).
5. Follow the Scottish Outdoor Access code at all times.

Flights contributing to research must:

1. Use a drone less than 2 kg in weight. No modifications (e.g. GoPro cameras attached to the main chassis or cameras suspended from chassis) are permitted.
2. Use a 2.7K/60fps or 4k/30 or 60 fps video setting.
3. Have all flight sensors enabled.
4. During approach, maintain a vertical height of not less than 30 metres (90 ft) above the animals and at a safe, steady speed.
5. Once a drone pilot is happy that no disturbance is being caused pilots can descend at an appropriate descent speed to a 'following height' of not less than 15 metres (30 ft) above the animals. The direction of travel of the drone should match those of the animals and the pilot should not undertake aerial manoeuvres that moves the drone ahead of the animals.
6. In the event of another drone being at the location first and flying over the animals, do not descend less than 30 metres (90 ft). More than one drone over animals causes a heightened collision risk and the welfare of the animals must come first. Where possible communicate with the drone owner and continue the flight only when it is safe to do so. If you feel you will not have enough battery to complete the flight and secure intended footage, fly back to the launch site and reassess.
7. Keep your drone a minimum 30 m (90 ft) above any seals on land, at all times
8. When ready to RTH (return to home), hold your position and vertical height for one minute where possible so that the animals beneath you have swam further away, and then fly back.

Boat-based flights:

1. Please read carefully and follow the Best Practice for Watching Marine Wildlife (links provided below)
2. The vessel must not approach the animals from ahead or behind their direction of movement when within 300 m (see figure to the right)
3. Aim to keep 400 m distance between the vessel and the animals, and never stay closer than 200 m to groups with calves ***
4. Avoid sudden unpredictable changes in speed, direction and engine noise



*** Groups/pods with calves, those actively hunting, feeding or in transit (moderate to fast swimming in a single direction) should be given a minimum separation distance of 200 metres – preferably 400 metres. Most groups of inshore killer whales will contain calves and juveniles. It should therefore be assumed that a minimum separation distance of 200 metres, preferably 400 metres, should be maintained.

Further reading

- A Guide to Best Practice for Watching Marine Wildlife <https://www.nature.scot/guide-best-practice-watching-marine-wildlife-smwwc-part-2>
- The Scottish Marine Wildlife Watching Code <https://www.nature.scot/professional-advice/land-and-sea-management/managing-coasts-and-seas/scottish-marine-wildlife-watching-code>
- ECOPredS community science project <https://ecopreds.com/citizen-science> and Facebook page www.facebook.com/ecopreds

Submitting images/video

To contribute data to the project, please email ecopreds@st-andrews.ac.uk. If this is your first time contributing to the project, we will send you participant information that will explain how the data would be used, and a consent check list. If you agree to participate, we can then proceed with the image/footage contributions in a way that is convenient to you (e.g., email, memory stick by post).

Questions & contact

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