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BHPA Incident Report: GBR-2021-19516

INCIDENT

Aircraft Type:	Sky Argos paraglider size L (95-110kg). Serial number 1955-11-0881. Sup'air Altirando airbag harness.
Certification:	EN-C
Manufacture Date:	Date of manufacture May 2014. Hours unknown.
Location:	The incident occurred at a site near Barton on Sea in Hampshire. OS Grid Ref. SZ241929. The site is a south facing sea cliff with a height of approximately 30m above mean sea level. There is a strip of grassland, 40m wide, at the top of the cliff along its length with open access to the public. This is separated from local houses by a road running parallel to the cliff edge.
Date and Time:	Tuesday 10th August 2021 at approximately 13:00.
Type of Flight:	Ridge soaring.
Persons Involved:	Paraglider Pilot A.
Injuries:	Fatal.
Nature of Damage:	None.
Pilot's Rating/Licence:	Pilot A held a BHPA Pilot rating, passing the exam in May 2011.
Pilot's Age:	62.
Pilot's Experience:	Pilot A joined the BHPA in 2009. Their flying hours and experience are unknown. Pilot A was a member of the Wessex Hang Gliding and Paragliding club. Anecdotal evidence from club members suggests Pilot A was a frequent flyer of the local club sites. In 2015 they attended an SIV course in Turkey and successfully completed the one week course, completing eight SIV flights.
Information Sources:	Witness statements, Met Office aftercast, Wessex Hang Gliding and Paragliding Club sites guide, Sky Argos certification report and independent glider inspection report.

1.0 Synopsis

Pilot A arrived at the site known as Barton on Sea at a time unknown on Tuesday 10th August 2021. Pilot A had been soaring the sea cliffs on their Sky Argos paraglider when, at approximately 12.50, they attempted to top land. During the final approach, and at a height of approximately 30ft above the ground, the glider suffered an asymmetric collapse on the left side of the wing. This resulted in the glider rotating and losing height rapidly. Before Pilot A could regain control of the glider they impacted the ground heavily.

2.0 History of the flight

On Tuesday 10th August 2021, Pilot A arrived at Barton on Sea and began flying their Sky Argos paraglider. The exact time of take-off is unknown. Shortly after midday Pilot A was joined by Pilot B. Pilot A and Pilot B flew for approximately 30 minutes in gradually increasing winds during which time Pilot A top landed and relaunched. The two pilots flew for a further 20 minutes after which Pilot B decided to make a bottom landing as the sea was now forming white horses indicating a further increase in wind strength. As Pilot B was packing their glider Pilot A flew overhead and the two pilots waved at each other. Pilot A headed to the take-off/landing area to attempt a top landing. Pilot B watched Pilot A fly over the cliff top until the glider appeared stationary and descending at which point Pilot B began talking to some walkers.

Shortly before 13:00, when Pilot A was pointing into wind and on final approach, the glider suffered an asymmetric collapse on the left side of the wing at a height of approximately 30ft above the cliff top. The glider dived and rotated to the left resulting in a rapid loss of height, penduluming Pilot A out to the side. Pilot A was unable to regain control of the glider before impacting the ground at speed.

Pilot A was immediately attended by passers-by who called the emergency services. The emergency services arrived, and Pilot A was subsequently taken to hospital by the air ambulance.

3.0 Focus

Based on the information available, the Investigation considered the site, the weather conditions, Pilot A's experience and Pilot A's equipment.

3.1 The site

Barton on Sea is a coastal town in the county of Hampshire. The sea cliffs run approximately east to west along the south coast and are approximately 20 to 30m in height above sea level. The cliffs are a conglomerate formed from compressed soil and pebbles and as such are subject to erosion at the cliff edge.

Photos 1 – 3 show the cliff looking east and west from the top and looking up to the incident area from below.

Photo 1. looking east.

Photo 1 above shows how erosion has undercut the cliff edge causing an overhang in places.

Photo 2. looking west.

Photo 3. looking up towards the incident site.

At this point the cliffs are approximately 30m above sea level.

There are no obvious areas where the cliff edge is rounded, including in the official take-off area. This makes taking off and landing particularly technical, potentially dangerous, and especially so in stronger wind speeds. This is well known to the club. The following are extracts from the Wessex Club sites guide.

The site is classified CP+25hrs MINIMUM REQUIRED, despite looking benign, there are a good number of hazards to catch out the unwary, particularly in marginal conditions or when the wind suddenly picks up.

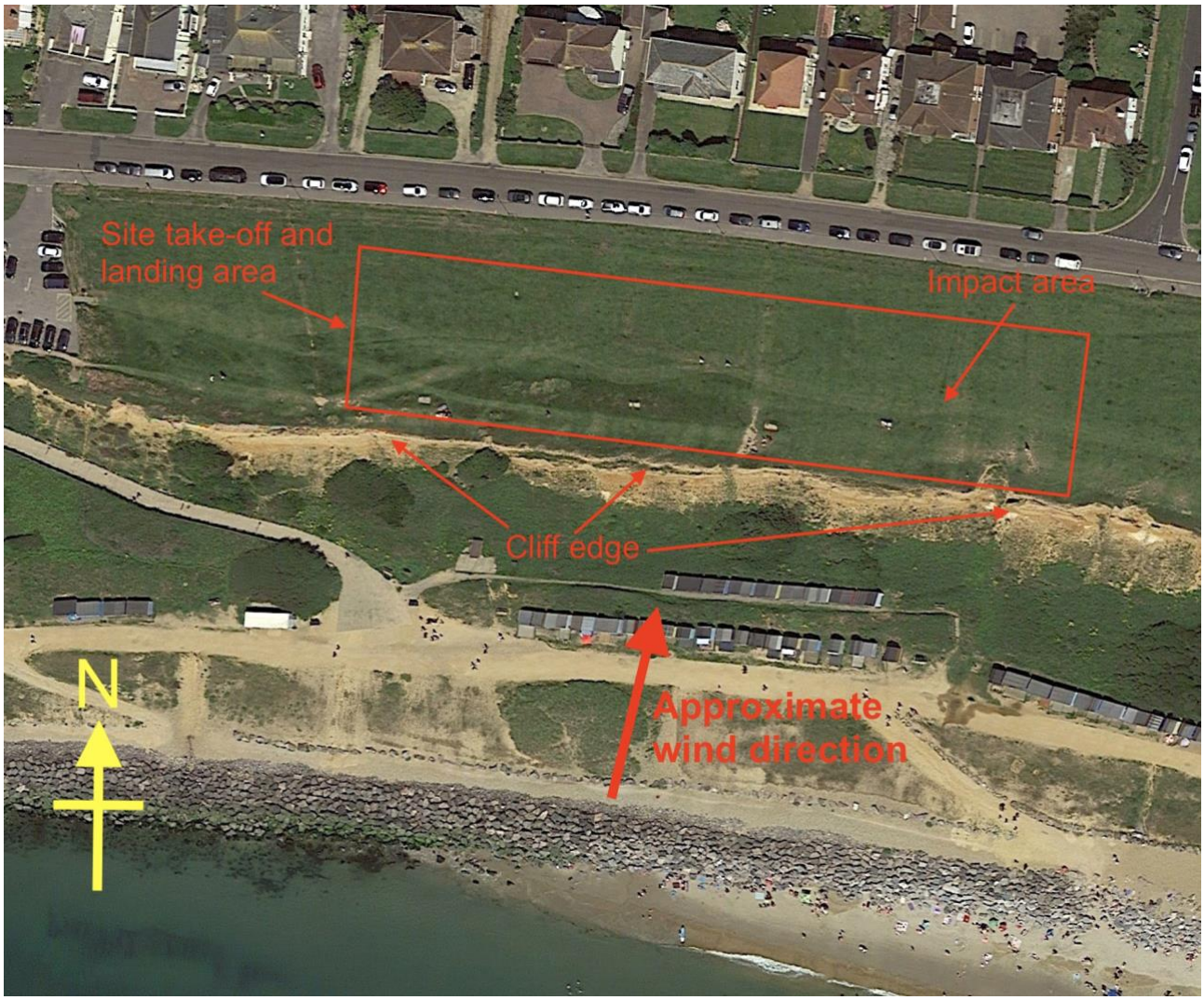
The take-off area is in rotor. You will be launching in rotor and it can be very difficult to inflate your wing. You might need assistance to reach the cliff edge on breezy days. The wind can increase without warning. Do not hesitate to land immediately if you notice the wind speed picking up as getting blown back here is not an option.

Top Landing must be in the designated areas (within the red bounded areas on the maps). Do not fly more than 12m back from the cliff edge to avoid rotor. Be prepared to drop your wing quickly to avoid being dragged back toward the road. Caution should be exercised on stronger days as venturi may begin to blow you back before landing – if in doubt, play it safe and land on the beach.

At the time Pilot A attempted to top land Pilot B estimated the wind to be 16-20mph and probably closer to 20.

The trim speed of the Sky Argos, when lightly loaded, would be somewhere in the region of 20-22mph. This would give Pilot A a ground speed of 0-6mph on final approach. An eyewitness, familiar with paragliding activity at the site, estimated Pilot A's ground speed to be no more than 0-5mph. Evidence from Pilot B and the eyewitness, along with the estimated trim speed of the Argos paraglider, would indicate that the wind was indeed in the region of 18mph. At this wind speed there would be significant turbulence in the top landing area caused by the interaction of the wind and the cliff edge.

The following Google Earth diagram shows the area from above:



The Investigation found that the nature of the site, in conjunction with the wind speed at the time of the incident, was a significant factor in this incident.

3.2 Weather conditions

A Met Office aftercast was obtained for the day in question and the summary is shown below:

Summary of findings

Summarising the above information, Tuesday 10th August 2021 saw a slight ridge of high pressure affecting the south of the country, but no major pressure systems affecting the country.

It is reasonable to expect the conditions in the area of interest to be similar to those reported at Bournemouth at the time of the incident. The Bournemouth METARs (Figure 6) indicate that the during the period of interest the surface wind direction was initially light and variable, strengthening through the period to a 6-9KT south westerly. There were two layers of cloud in the area. The first being of few amounts at bases of 1800-2100ft, the second being of scattered amounts at 3200-3900ft. No significant weather was reported.

These observations are consistent with the information discernible from the satellite and RADAR imagery. The various forecast products available for the period also indicated an expectation of conditions faithful to those observed. The 1000ft wind was forecasted to be approximately a 10KT westerly.

However, evidence suggests that the wind on the day was significantly stronger than the 6-10 knots (7-12mph) forecast in the Met Office report. Pilot B stated that "The wind was forecast to increase during the day," and that on arrival at take-off the wind "…was about 22kph (14mph)". This was measured using an anemometer. Pilot B described how they flew with Pilot A for approximately 30-45 minutes in the strengthening wind before Pilot B opted to bottom land, by which time there were white horses on the sea indicating a wind strength of approximately 16-20mph. The interaction of the wind at speeds of 16-20mph with the sharp cliff edge would give rise to significant areas of turbulence, making top landing extremely dangerous due to the risk of turbulence induced glider collapse.

The Investigation found that the wind strength was a significant factor in this incident.

3.3 Pilot A's experience

Pilot A had been a member of the BHPA since June 2009, gaining a BHPA Club Pilot Rating in October 2009 and Pilot rating in May 2011. They also attended an SIV course in April 2015. Pilot A's flying hours are unknown though anecdotal evidence from Wessex club members suggests Pilot A was a regular flyer of Wessex club sites. However, at the time of the incident there was a suggestion that Pilot A may not have been particularly current due to COVID lockdown rules. Without logbook or other hard evidence there is no way to determine Pilot A's actual experience or currency.

3.4 Pilot A's equipment

Pilot A was flying a Sky Argos paraglider with a Sup'air Altirando airbag harness.

The harness was found to be well used but in good condition. The airbag appeared to function correctly from the visual inspection. The effectiveness of the airbag in the incident could not be established.

The paraglider was sent to an independent inspection centre for further examination. With the exception of some stitching damage on the leading edge, most likely having occurred during the incident, the glider was found to be in very good condition. The defects that were noted were minor and would not have contributed to the incident had they been present before the incident occurred.

The Sky Argos paraglider is certified at EN-C with a weight range of 95-110kg. Certification under EN926-2 describes the flight characteristics of class C gliders as follows:

Paragliders with moderate passive safety and with potentially dynamic reactions to turbulence and pilot errors. Recovery to normal flight may require precise pilot input.

It goes on to describe the pilot skills required as follows:

Designed for pilots familiar with recovery techniques, who fly "actively" and regularly, and understand the implications of flying a glider with reduced passive safety.

Without evidence relating to Pilot A's experience and currency it is impossible to say whether the Sky Argos was a glider suitable for their level of skill. Pilot A had owned the glider since 2015 having purchased it as a demonstrator wing from a local dealer. It would not be unreasonable to think that they had become familiar with the flying and handling characteristics of the Argos.

At the time of the incident Pilot A had a body weight of approximately 75kg. This approximate weight is based on evidence from a close paragliding friend of Pilot A, and from evidence from Pilot A's GP. These were the only sources of this information available to the Investigation. Pilot A's weight as recorded by their GP was 72.7kg on 21st May 2019. The certified weight range for the Argos in the large size is 95-110kg. The combined weight of Pilot A's glider and harness was 8kg. Allowing for helmet, clothing, and footwear a further 7-10kg can be added giving an all-up flying weight of approximately 90kg. This would put Pilot A close to, and possibly up to 5kg below, the certified minimum weight for the glider. The reduced wing loading would result in lower ground speeds and make the glider more susceptible to the effects of turbulence, making a collapse more likely in turbulent air.

The Investigation found that Pilot A's all-up flying weight being at or below the certified minimum weight for the glider may have been a contributing factor in this incident.

4.0 Findings

The Investigation concluded that the incident occurred as a result of Pilot A losing control of their paraglider while attempting to top land and being unable to regain control before impacting the ground. The loss of control was a result of encountering turbulent air caused by the interaction of the cliff top and the strengthening wind.

Pilot A's all-up flying weight being at or below the certified minimum weight for the glider may have been a contributing factor in this incident.

5.0 Recommendations

It was noted during the investigation that there was an inconsistency in the Wessex club site guide for the Barton-on-Sea site. It states that pilots should take off and land within the designated area, which is approximately 30m deep by 145m long. It goes on to say that pilots must not land further than 12m from the edge of the cliff to avoid the rotor turbulence. The depth of the designated area is nearly three times that of the stated safe landing zone.

The Investigation recommends that the Wessex Paragliding and Hang Gliding Club undertake a review of the site guide for Barton-on-Sea, to establish whether changes are necessary to clarify the advice given.