Competition Enterprise – Examples of Tasks and Definitions for Task Setters, Scorers and the Interested Pilot.

This document describes commonly flown Competition Enterprise (CE) tasks and outlines how those tasks can be set and scored in the "OLC distance + bonus point" model. CE tasks differ from traditional racing tasks in two main ways, namely that 1) they do not explicitly focus on speed and 2) that they allow significant in-flight pilot task flexibility within the daily task guidelines. There is no formal Competition Enterprise rule book and the only 'fixed' rule that has emerged over the years is the maxim that "the scorer is always right"! This document is therefor only a guide as to how CE has worked in the past, blending in the use of OLC to calculate distance points, introduced in 2019.

Common CE terminology:

- **'Base'** means the starting airfield and returning to base means landing back or in some tasks, returning to the base TP – normally a 2km radius circle, for reasons of safety.
- **'Turning Points'** (TP) usually refer to waypoints on the BGA list. However, on occasion, other turning points may be defined, in which case they are very likely to be supplied to the pilot well before the start of the competition. Sometimes these TPs are nominated by the task setter, sometimes the pilot will be able to self-select the TPs during the task and sometimes there is a mixture of both in a task. TPs normally have a 1km radius zone around them.
- **'Rings'** refer to circles of given distance from the base airfield, typically set at intervals of 10km. Crossing that ring will count as 'turning' or 'visiting'.
- **'Quadrant'** is defined as two perpendicular, infinite length lines used to define 4 equal zones for the task. Typically, these lines will be defined north-south and east-west.
- **'Line'** is a single line of infinite length, used to define two zones for the task. Typically, the lines are north-south or east-west but can be defined as an infinite line running through two given TPs.
- **'Polygon'** is a shape defined by usually three or four TPs. Often an out-and-return flight to a pilot defined TP is made from the corner or the polygon.
- In most tasks, **'turning'** a TP or ring implies a change of direction from the TP (ring) to form an integral part of the task shape. **'Visiting'** a TP or ring simply means passing through a TP (ring).
- **'Start Zone'** is a usually a 4km radius cylinder centred on the 'base' airfield, although this can be varied depending on local site requirements. Maximum start height is 3280ft QFE (1,000m), however gliders must remain clear of cloud. Other than for reasons of testing (30 seconds clean engine run max) engine equipped gliders must start their engine within the start zone and must not climb above 2,000 QFE, otherwise a land-out will be scored. A valid start is made when the pilot leaves the start zone without the use of power, ie not on tow

  and not using an engine. If no valid start is made, distance points will still be valid however no bonus points will be earned.

Task Setting

As a general guideline, tasks should be set to make the most of the day's (safe) flying potential, taking into account the variety of pilot ability and glider performance. This may involve the use of ridge and wave lift, as well as thermal soaring. Although there may be a launch grid, to aid ground and launch operations, there is no "held start" or last finish time (with the possible exception of the final day or where poor weather is a possibility). Scores for a given task are based on the distance flown and bonus points achieved during the flight. Pilots are required to 'self-score' at the end of their flight, estimating the distance flown and the bonus points they believe they have collected. For this reason and to avoid confusion, the daily rules for the task and the bonus points should be as simple and unambiguous as possible. Distance points (1 point per full Km) are usually calculated using OLC (see appendices).

Pilot flexibility within the task comes from deciding on how to best use the day to accumulate the maximum score from the available distance and bonus points. Bonus points might be awarded on a task-specific basis, for flying to named turn points, or for activities which are valid through the competition, such as visiting the coast, flying to another country, gain of height above a predefined level or landing back at base. Often, some bonus points are available relatively close to the home airfield ('base') to encourage lower ability pilots and gliders to fully participate, collecting distance and bonus points, whilst minimising out-landing risk. It is highly unlikely that a pilot will be able to accumulate all bonus points on offer! Example of tasks and their bonus point structures are given later. As a task planning guideline, bonus points are should account for between one third and one half of all points earned during a day's flying.

Note that on days with a particularly positive weather forecast, consideration is often made for pilots who may with to fly a fixed FAI task, to achieve their Gold, Diamond or even 750km flights. This can often be achieved by the pilot preplanning and declaring a fixed task, within the daily CE task rules, for example declaring a 300km triangle using BGA gliding clubs as part of a 'visit or friends' task. Whilst the responsibility for declaring such a task is down to the pilot, it may be prudent to mention in briefing that the FAI rules for start, finish and turn-point sectors are likely to be different than that used within Enterprise.

Scoring

A pilot's score is based on the total of distant points plus bonus points, achieved during the day's flight. The pilot completes a self-scoring sheet (see example below), indicating the

unhandicapped distance they think they have flown and the bonus points they believe they have scored. This sheet is handed in, along with their IGC trace, immediately after landing. The scorer will use the IGC file to validate the self-score sheet and check for things like airspace infringement and undeclared engine use.

Distance flown is based on the "OLC plus" distance calculation. This can be done automatically both by the Scorer's SeeYou program and by the pilot's PDA software, such as SeeYou mobile, XCSoar, LK8000 and the LX9000 series of flight computers. The OLC distance is based on all non-powered flight, irrespective of any task rules, the calculated OLC task starts after a launch finishes and ends on a landing or engine use. This means that a pilot's distance score will take into account both pre-start flying and all final-glide distance, even if a land-out or engine use is required. There are examples of OLC distance scoring given in the appendices of this document. OLC allows for a maximum difference between start and finish height of 1,000 metres. Distance points are awarded as 1 point per full kilometre of handicapped soaring flight, as scored via OLC. It is down to the pilot to fly a route that maximises both the OLC distance and the bonus points earned.

Bonus points fall into two categories, those varied each day, to help define the task structure, and those which are consistent all week, which help define Competition Enterprise!

- "Daily bonus points" will change every day and are typically based around pre-set and pilot selected turn points. Examples might be "10 points for every BGA gliding club you 'visit'" or "15 points 'turning' XYZ before then going on to fly to any pilot nominated BGA turn point". More complicated bonus structures can be created, such as "10 points for the first TP on the polygon, 20 points for the second, 30 points for the third…" etc. A typical Enterprise task may see a winning pilot turning over 10 turn points, collecting the bonus point towards their overall score as they do so.
- "Other bonus points" will vary between each CE competition but remain consistent for the whole week. They may include bonus points for flying over the sea / crossing a major river, flying to another country / area, a significant gain of height and returning to base as the end of the day.   Examples might be a 'Coast Zone' bonus "25 points for flying over the North Sea", "2 points for each 100 ft height gain above 5,000 QNH", "25 points for crossing the river xxx to the south of yyyy" or "10% distance bonus for landing back at base".

To ensure that valid starts are made (i.e. exit from the defined start zone below a given height), a rule should be implemented that bonus points will only be awarded if a valid start is made. In the case of no valid start being made, the pilot would still get distance points, as

defined by OLC rules, which will reward their flying whilst not giving them a competitive advantage.

As previously mentioned, bonus points are likely to account for between one third and one half of all points earned during a day's flying. The pilot's total day score (distance + daily bonus points + other bonus points) is then divided by the BGA handicap to give a final day score. Both distance and bonus points are handicapped to reflect the fact that higher performance gliders will be better able to accumulate more bonus points during a given day.

Common Task Types

The following is brief description of some common Enterprise task types, with a guideline on how they might be scored. A task setter from the local club should work with a CE Task Advisor to create a suitable task to fit the day's soaring conditions, local knowledge, the limitation of airspace and the spirit of Enterprise tasks. A reminder that all soaring distance is counted (OLC rules) however the earning of bonus points requires a valid start to be made and the bonus point rules to be met.

Visit our friends

A pilot selected task using only gliding sites as TPs. Usually any site marked on the current ½ million map with a 'G' to denote gliding activity is a valid TP. Fixed bonus points are awarded to each club 'visited'. This task is usually flown once during each Competition Enterprise.

Tennis

The task area is divided into two by a line though the 'base', normally north-south, or east west. Permitted TPs may be listed on each side of the line ('net') or the task may permit any BGA TP to be used. From base, fly to any TP on one side of the line then back to base to land or to a TP on the other side of the line. Repeat as desired but using each TP only once. There is no limit to the number of TPs they can visit.

A variant on this that has been used to confine the flight area is to have a quadrant one side of base (say centred on NW line) and a band (say) to the east of base bounded by two lines of latitude. A further variant is to require each TP in a sector to be closer than any previously used.

Pilots choosing to 'turn' more than 5 TPs by flying multiple shorter legs will gain more bonus points but may not maximise their OLC distance score, something they should consider when planning their flight.

Rings

Circles defined at 10 km intervals centred on base. Fly out to any circle and then back to base to finish or to any other circle. Score 10km each time you turn a circle different from the one last crossed. No bonus for returning to the base zone except to finish.

"Ever Decreasing Circles"

A variation on the 'Rings' task, requires each subsequent ring 'turned' to be closer to 'base' than the previous. This is a good last-day task as it keeps gliders close to the airfield to minimise retrieve delays. Due to the resultant flight path shape and ease of manual scoring, the task may be scored manually, by simply counting the rings turned ("60k + 40k + 30k + 10k"). If OLC distance is not to be used, this should be briefed to the pilots.

Compass Rose

The task area is divided into quadrants by a north-south line and an east-west line through the base. From the base, 'turn' any BGA TP in any quadrant and then fly to and 'turn' any BGA TP in an adjacent quadrant. Where a TP is very close to a line, the task setter should brief pilots as to which quadrant the TP is in, for scoring purposes. Repeat in all 4 quadrants and then fly back to base. Bonus points for the (up to 4) self-selected BGA TPs can rise, for example "10 points for the first TP in the first quadrant, 20 points for TP 2 in quadrant 2, 30 points for TP 3 in quadrant 3, 40 points for TP 4 in quadrant 4". This bonus point structure would encourage pilots to try and turn TPs in all 4 quadrants.

Cat's Cradle

Pilot selected routing between a list of TPs, using a maximum of 5 TPs, not including the 'base' to form the cat's cradle. The list of TPs can be pre-defined, pilot defined or a mixture of both, depending on how the task setter wishes to define the task. Either a fixed or rising bonus point structure can be used.

Turning the Cog

A polygon is defined using TPs with 'base' approximately in the centre of the polygon. Typically, the polygon is a triangle or quadrilateral. Fly from base and turn any corner of the polygon. Optionally turn one pilot selected BGA TP before flying to and turning the next corner of the polygon. Repeat for the rest of the polygon. Return to base to land at any time. Bonus points for each TP turned on the polygon and for each of the pilot selected TP turned. Additional bonus points for turning all corners of the polygon.

Main Line

One or more 'lines' of TPs, radiating from the base airfield in roughly a straight line is defined. (These might coincide roughly with a ground feature such as a railway line or motorway). The pilot flies through ('visits') as many of these as they can, in any order, collecting bonus points for each. The pilot can opt at any time to cross to another of the lines and continue 'visiting' the defined TPs on that line, collecting bonus points. Additional bonus points can be awarded for visiting at least one TP on all of the 'lines'.

A variation of this is to have a single line (normally set in the direction of the best weather!) from which the pilot can at any point choose to fly away from the line and turn one additional pilotselected TP, (perhaps limited to gliding clubs?) before returning to base. This is a particularly good task variant if some pilots may wish to attempt and declare a FAI badge flight.

String of Pearls

A list of TPs (string of pearls) is defined from the base airfield usually forming a fairly straight line. Fly to and 'turn' any TP and reverse direction back to base or to another TP. Reverse direction as often as you wish but only turn each TP once. The maximum number of bonus points is only limited to the number of TPs on the 'string'. Bonus points are awarded only for TPs that are 'turned', ie the reverse of direction occurs, not for simply 'visiting'. Bonus points for turning a given TP can only be earned once. Pilots choosing to 'turn' more than 5 TPs by flying multiple shorter legs will gain more bonus points but may not maximise their OLC distance score, something they should consider when planning their flight.

These are only examples of Enterprise tasks. Within the guidelines of the "distance plus bonus" structure, task setters can use their creativity to create new tasks, always ensuring they check with the scorer that they can be scored easily and that the pilots will be able to understand the rules at briefing! Good luck and fly safely.

Appendices – Pilot Self Score Sheet:

The following is a sample pilot self-scoring sheet, which the pilot would complete immediately after their flight and hand in with their logger file. The points for the 'other' bonuses, i.e. those that are consistent all week, may be edited as required to meet the site / competition requirements.

Competition Enterprise — Flight Log & Self Scoring Sheet	/ /

Task Name		Day N°.
Pilot		Comp ID	

Flight Log to record *all* relevant events, *even those after engine use.*

TPs, CZs, FPs, Sectors, Rings, TSBs, Max Height QNH, Flight times, etc.

Flight Duration (if required)	:	Flight Distance:	Nav computer OLC km *or* Pilot estimated distance	km

	Land Back Y / N		LB Bonus	

Other	N°.	Pts	Bonuses			
Coast Zone(s)			N°. of TPs Claimed		TP Bonus	
Foreign Part(s)			Max Height QNH			
Sectors / Rings			Height gain ↑ 5000 QNH		Height Gain Bonus	
Task Specific Bonuses						
Other Bonus Total			→ Other Bonus			

Engine Used Outside Start Zone?	No	Maybe	Yes		
Controlled Airspace Entered?	No	Maybe	Yes	Claimed Score	
Airspace Clearance Obtained?	N/A	No	Yes		
FLSSS v 2022	Check boxes and show full details overleaf				

Appendix – OLC distance

OLC distance scoring is the gliding world's most widely used distance scoring methodology. It's use ensures equitable scoring of all non-powered flight and to simplify the distance scoring process for both pilots and scorers**.**

OLC automatically calculates 'distance' as the maximum, non-powered flight path from the departure point, around up to 5 turn point, to the finish point, with the departure height being a maximum of 1,000m above the finish height.

Simply put, OLC retrofits the best 5 turn-point task into a given IGC trace and produces a distance in KM of that 5 turn-point task. OLC distances are calculated fully automatically both by the Scorer's SeeYou program and by the pilot's PDA software, such as SeeYou mobile, XCSoar, LK8000 and the LX9000 series of flight computers.

The OLC distance is based on all non-powered flight, irrespective of any task rules, the calculated OLC task starts after a launch finishes and ends on a landing or engine use. This means that a pilot's distance score will take into account both pre-start flying and all final-glide distance, even if a landout or engine use is required. Airspace infringement is not automated and detection of such an infringement will be down to the scorers. Typically, the SeeYou desk-top program takes less than 10 seconds to calculate the OLC distance, which is done automatically as soon as the IGC trace is opened. This compares very favourably to the 'many minutes' it may take for a manual distance calculation, which when multiplied by 35 or more traces, can and does need to very late-night scoring sessions.

Note that the use of OLC to calculate distance does not limit any task to a maximum of 5 turn points! As with every Enterprise task there has ever been, the pilot will have to use their skill to balance the distance points they can earn verses the bonus points available. A good understanding of the daily task, including OLC distance scoring, will help a pilot do this.
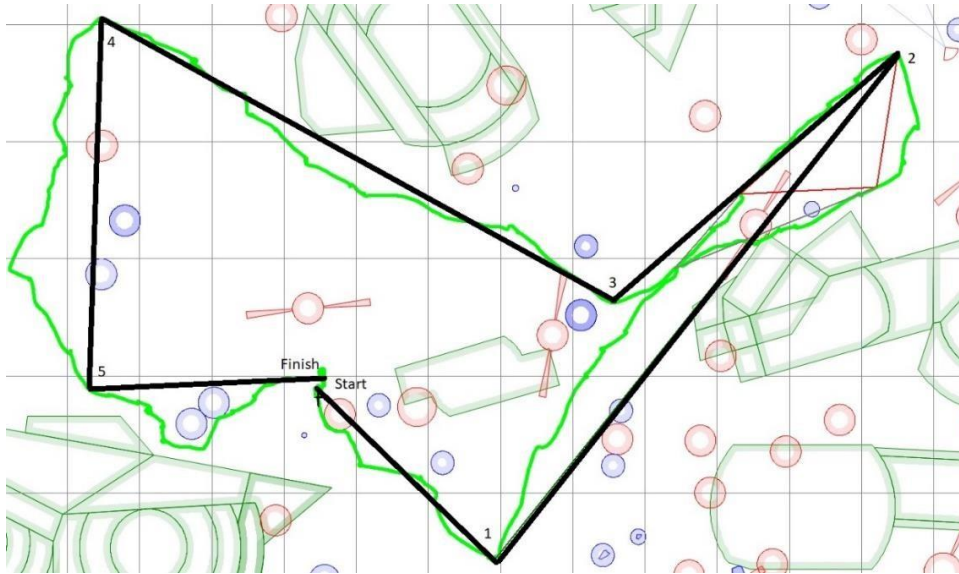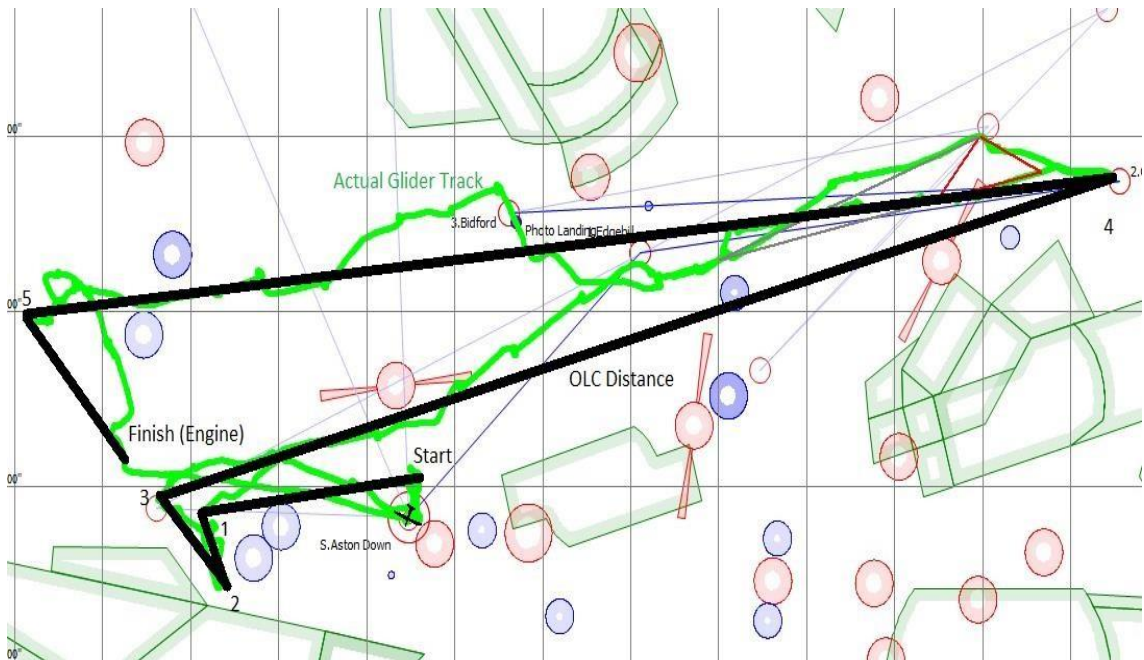
Figure 1- completed task
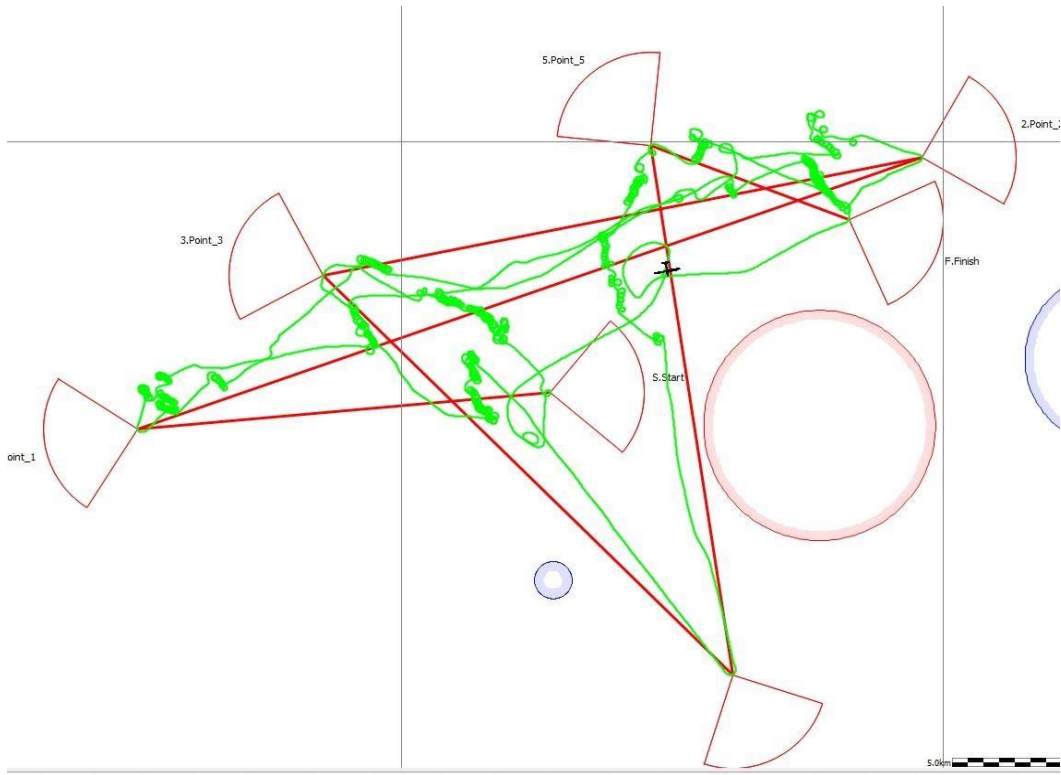

Figure 2- Engine land out

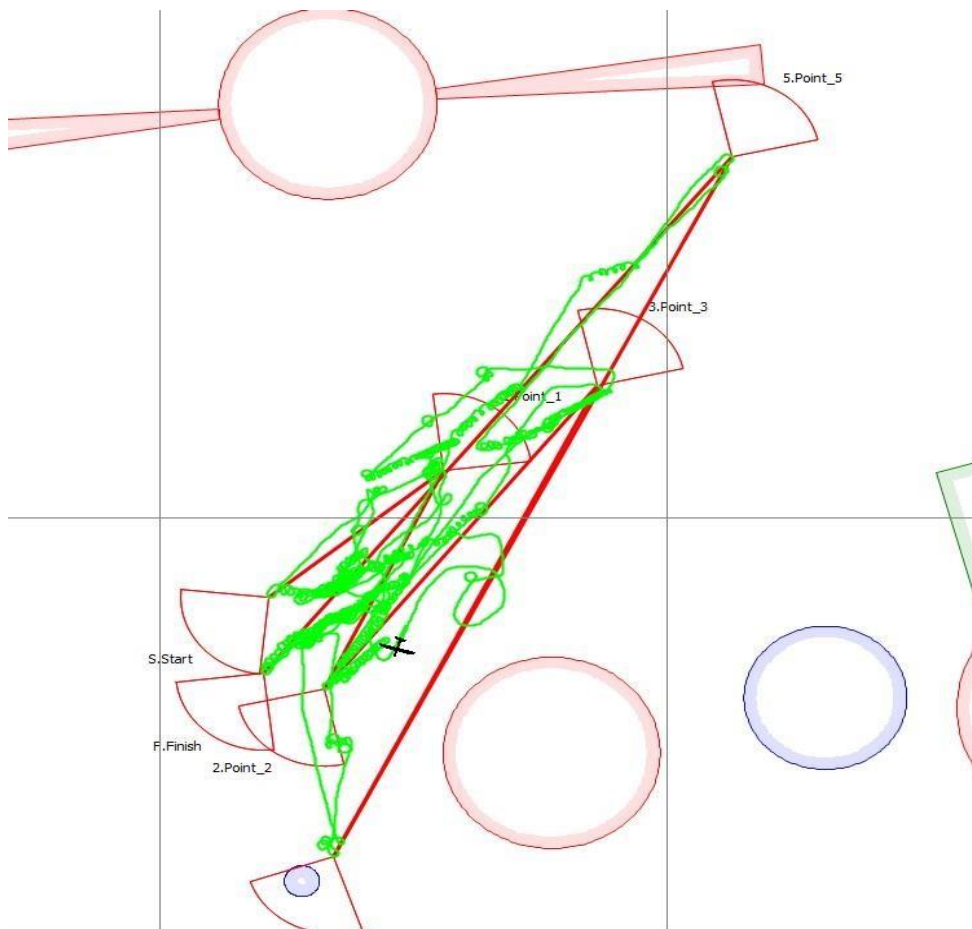*Figure 3- Cat's Cradle type trace*

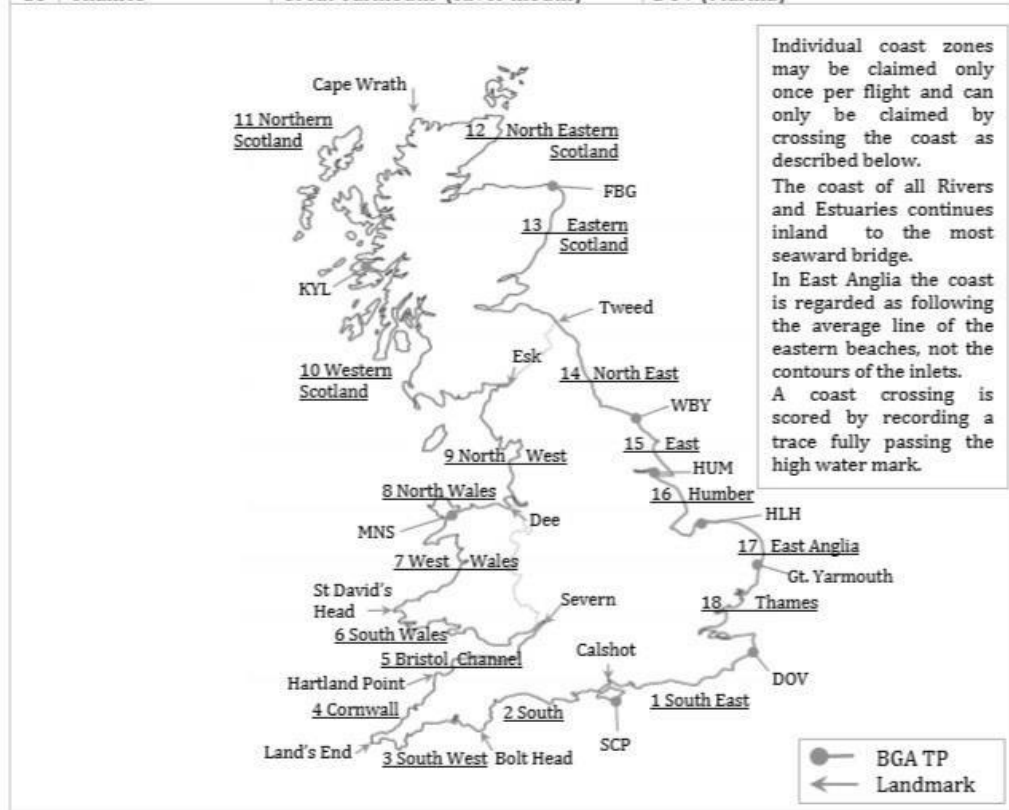*Figure 4- Local soaring in strong w*

Appendix – Coast Zones

Bonus points are usually awarded throughout the week for gliders that make a trip to the coast, or major water feature such as a river estuary and fly over it. These 'Coast Zones' bonuses are likely to be consistent all week but may vary from competition to competition to reflect the location and geography of the hosting airfield. The chart below, created by Andrew Cluskey, may help task setters and competition organisers to define the Coast Zones for a particular CE event.

COAST ZONES

1.3.18

1	South East	DOV (Marina)	SCP (St Catherine's Point) / Calshot
2	South	SCP (St Catherine's Point) / Calshot	Bolt Head
3	South West	Bolt Head	Land's End
4	Cornwall	Land's End	Hartland Point
5	Bristol Channel	Hartland Point	River Severn (2nd Crossing)
6	South Wales	River Severn (2nd Crossing)	St David's Head
7	West Wales	St David's Head	MNS (Menai Bridge)
8	North Wales	MNS (Menai Bridge)	River Dee (Connah's Quay Bridge)
9	North West	River Dee (Connah's Quay Bridge)	River Esk (Gretna Bridge)
10	Western Scotland	River Esk (Gretna Bridge)	KYL (Skye Bridge)
11	Northern Scotland	KYL (Skye Bridge)	Cape Wrath
12	N. Eastern Scotland	Cape Wrath	FBG (Frazerburgh Harbour)
13	Eastern Scotland	FBG (Frazerburgh Harbour)	River Tweed (Berwick Old Bridge)
14	North East	River Tweed (Berwick Old Bridge)	WBY (Whitby Swing Bridge)
15	East	WBY (Whitby Swing Bridge)	River Humber (Humber Bridge)
16	Humber	River Humber (Humber Bridge)	HLH (Hunstanton Lighthouse)
17	East Anglia	HLH (Hunstanton Lighthouse)	Great Yarmouth (River mouth)
18	Thames	Great Yarmouth (River mouth)	DOV (Marina)

Individual coast zones may be claimed only once per flight and can only be claimed by crossing the coast as described below.

The coast of all Rivers and Estuaries continues inland to the most seaward bridge.

In East Anglia the coast is regarded as following the average line of the eastern beaches, not the contours of the inlets.

A coast crossing is scored by recording a trace fully passing the high water mark.

Thank you for reading this far!   Enjoy Enterprise and fly safely.

Chris Davison – Jan 2019. With thanks to Andrew Reid for his original task notes and long sufferings as both task setter and scorer for many Enterprises!