

British Universities Life Saving Clubs' Association

Calculation of Results v1 (2014)





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1. Overall Purpose

At the General meeting in December 2013 the move was made to radically overhaul the method of calculation of competition results to a more fair proportional based system. The original scoring was based on a system that could be completed without the aid of a computer but with the advent of greater technology a new scoring structure was proposed. The proposed scoring structure alters the calculation of points for each individual event, but does not change the way in which teams are finally ranked. The only element remaining from the previous system is the relative weighting of SERCs against the speed events. It was decided by the committee that a separate document detail the scoring procedure so not to inflate the rule book too greatly.

This document is to be treated as an extension of the rule book and is therefore subject to all the rules and policies that refer to the BULSCA Competition Manual.

The overall driving purpose behind the scoring is to compare results and allow exceptional or very close performances to be reflected in the final results. Points awarded to individual events/components are known as Lifesaving Points(LSp) and those awarded during the results are Results points(RSp).

LSp allows for comparison between different events and sexes as a comparison for performance. However this does not hold for the 4 x 12m Line Throw Relay due to the calculation method used (see section 2.2).

2. Calculation of Events/Components

2.1. SERC

2.1.1. The team with the highest SERC Points(**SERCp**) shall be awarded 1000 **LSp**

2.1.2. Teams placed 2nd and below will be awarded a proportional score

2.1.2.1. Calculated by the following formula:

$$LSp = \frac{Teams\ SERCp}{Max(SERCp)} \times 1000$$

2.1.2.2. A disqualification will result in the Team being awarded 0 **LSp**

2.2. Speed Events

2.2.1. All (legitimate) times will be in seconds and record to 1/100th for the purpose of the calculation.

2.2.2. LSp is always calculated after any time penalties or other deductions have been applied.

2.2.3. Individual and Relay Events (Not 4 x 12m Line Throw Relay)

2.2.3.1. The BULSCA record will equate to exactly 1000 LSp for each event.



2.2.3.2. LSp for each of the teams will be calculated using the following formula

$$LSp = \left(1 - \frac{\text{Time Achived} - \text{Uni Record}}{\text{Uni Record}}\right) \times 1000$$

2.2.3.3. A disqualification will result in the Team being awarded 0 LSp

2.2.4. 4 x 12m Line Throw Relay

2.2.4.1. A Disqualification results in being awarded 0 LSp

2.2.4.2. LSp per team not disqualified is calculated by the following formula:

$$LSp \text{ per Team} = \frac{1000}{\text{Total Number Teams not DQ in event}}$$

2.2.4.3. LSp awarded to the number of teams that got 0 to 3 Members to the side (in accordance with the current issue of the BULSCA Competition Manual) are awarded following the below table of calculations:

Number In	Section for result	LSp Scored
0	$\alpha = \text{Number that got 0} \times LSp \text{ per team}$	$LSp = \frac{\alpha}{2}$
1	$\beta = \text{Number that got 1} \times LSp \text{ per team}$	$LSp = \alpha + \frac{\beta}{2}$
2	$\gamma = \text{Number that got 2} \times LSp \text{ per team}$	$LSp = \alpha + \beta + \frac{\gamma}{2}$
3	$\delta = \text{Number that got 3} \times LSp \text{ per team}$	$LSp = \alpha + \beta + \gamma + \frac{\delta}{2}$

2.2.4.4. If a team get all 4 team members to the side (in accordance with the current issue of the BULSCA Competition Manual) the below formula is used to calculate the result

$$\text{Let } \mu = (\alpha + \beta + \gamma + \delta)$$

$$LSp = \mu + \left[1 - \left(\frac{\text{Time Achived} - \text{fastest time}}{\text{Difference between slowest and fastest time}}\right)\right] * (1000 - \mu)$$

2.2.4.4.1. If only 1 Team are to get all 4 team members in, 1000 LSp are to be awarded to that team, as the above formula in 2.2.4.4 is undefined at that point.

3. Calculation of Combined Results

3.1. Principles of Results Points (RSp)

3.1.1. Once LSp have been calculated the results are then scaled to produce the RSp.



- 3.1.1.1. This is such that all events are treated equally by the scoring system until the weighting described in 3.2 is applied.
- 3.1.1.2. Marks for set positions shall be as follows:
 - 3.1.1.2.1. Disqualifications achieve 0,
 - 3.1.1.2.2. Last place achieves Minimum Score(θ),
 - 3.1.1.2.2.1. Minimum score is 100 RSp,
 - 3.1.1.2.3. First place achieves 1000 RSp
- 3.1.1.3. Linear scaling is used to spread the LSp across the required area, and keeps the relative gaps the same size.

3.2. Calculating Results Points (RSp)

- 3.2.1. Assigns 0 RSp to all those who were disqualified.
- 3.2.2. Calculate RSp for other teams.
 - 3.2.2.1. Number that are constant for each event:

Size of Spread $\rho = 1000 - \theta$

Minimum LSp σ

Maximum LSp τ

Multiplication factor $\varphi = \frac{\rho}{\tau - \sigma}$

- 3.2.2.2. Calculation of RSp for each team is as follows:

$$RSp = (LSp - \sigma) \times \varphi + \theta$$

3.3. Application of weightings to RSp and Summation

- 3.3.1. Events can be given priority through a weighting as defined in the BULSCA Competition manual for League events and by the Competition Management committee for the competition results.
- 3.3.2. Each RSp is multiplied by the weighting or priority to give an final total for that event.
- 3.3.3. These weighted results are then Summed to produce an overall result.
- 3.3.4. Should teams be tied after the summation they will be declared equal.

3.4. Accuracy

- 3.4.1. Where possible calculations shall not be Truncated or Rounded, and the full value passed onto the RSp calculation.
- 3.4.2. This is subject to the accuracy of the calculation engine being used, by any truncation must be applied consistently to all results.
- 3.4.3. It would be expected to at least 5 decimal place of accuracy.