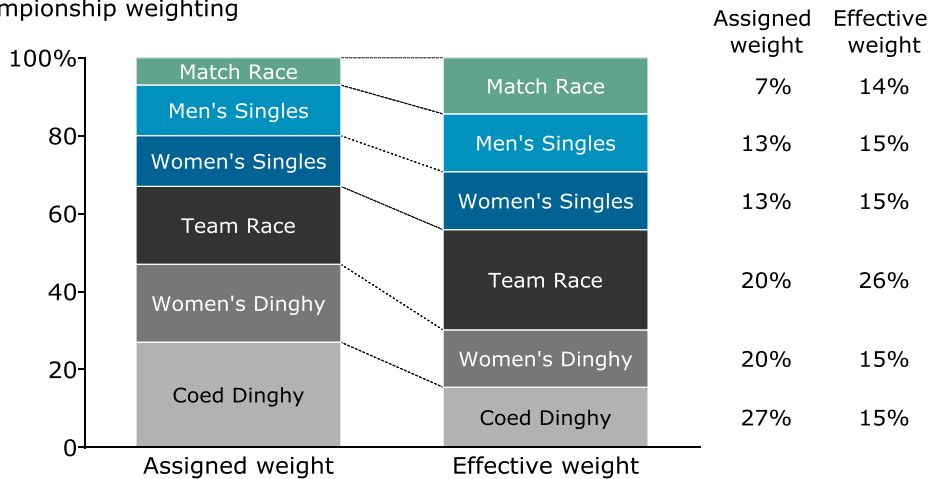


Fowle Trophy Calculation Analysis

The current method for calculating Fowle Trophy points is not achieving its intended objective. The intent of the calculation is to take the finishing position of each team at the 6 championships, weight those results according to how important each event is (using the weightings assigned by the ICSA), and add up the total to determine the winner. However, the existing calculation also takes into account fleet size, which may be related to how important an event is determined to be, but should not be explicitly included in the calculation. Furthermore, the method it uses to do so has the effect of changing the effective weighting of each event. As a result, the effective importance of each event changes significantly:

Championship weighting



The women's and coed dinghy championships are worth less than the weighting intended, while the others are worth more than intended. The effective weight above was determined by calculating the relative contribution of a one position gain for each of the championships. Theoretically, a one position gain in the match racing championship should be worth a little more than half of a one position gain in one of the singlehanded championships. However, with the current methodology, a one position gain in the match race championship is worth about the same as a one position gain in the singlehandeds, even though the singlehanded championships are supposed to be almost twice as important.

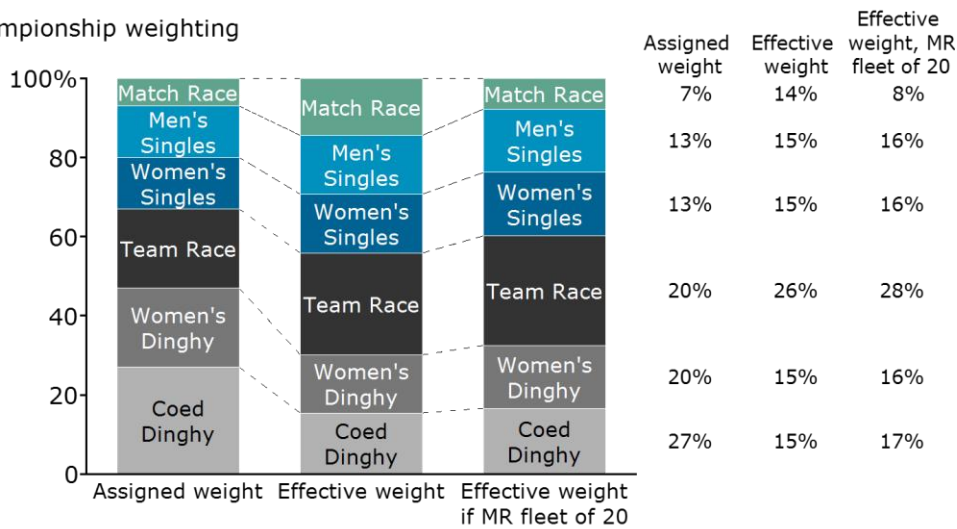
The problem lies in the normalization method. Here's how it currently works: Because this is a high-point system, you first need to invert the finishing positions so that first has a higher value than second, etc. [Note: I'm using 'value' to refer to the numerical value assigned to each position at each championship. 'Points' are then derived from this value, but are a separate number.] In addition, since you want each event to be worth its assigned weighting rather than the size of the fleet, you also need to standardize the value of first place across the championships. For example, if the value of first for each event was equal to the number of boats in the fleet and each place thereafter worth one less, the value of first would be 18 in the singlehandeds and 10 in the match race. Since you want the points from those events to be worth their assigned weighting (not the fleet size), first place in every event is standardized to a value of 100. This value is then multiplied by the event's assigned weighting to

determine the points earned for each championship. First place at singlehanded is worth 13 points, first at match race is worth 7 points, etc.

The problem arises in the calculation for positions below first place. Currently, the fleet size is spread across the full spectrum from 0 to 100. For example, match racing has 10 boats, so first has a value of 100, second a value of 90, etc. Since not all championships have the same size fleets, the gap in value depends on how many boats are in the fleet: more boats means smaller gaps, fewer boats means larger gaps. This results in smaller championships being relatively more important, which typically works in direct contradiction to what the assigned weighting is trying to accomplish. As a result, with the exception of team racing, the remaining championships are effectively equally weighted. In the case of team racing, the methodology amplifies the weighting because the event has a small number of teams but is relatively heavily weighted, so the effects are additive.

As further evidence that the current methodology is flawed, consider what would happen if you double the size of the match racing fleet. The 'gap' in value goes from 10 to 5, and the effective weight of the event is cut in half even without changing the assigned weighting. Furthermore, it's changing the effective weighting in the opposite direction of what you would likely do to the assigned weighting if you were adding teams to a championship.

Championship weighting



Fortunately I think there is a very simple change that will fix the problem. Rather than spreading the finish position values across the full spectrum of 0 to 100 for each championship, decrease each finishing position value by 1. If first is normalized to a value of 100 for each event, second has a value of 99, etc. The choice of 100 is somewhat arbitrary. You can really normalize to any number, as long as it's greater than the number of teams in the largest event. All teams that don't compete are given the same value as last minus 1. I realize it looks odd to assign points to teams that don't even compete. But assigning zero to teams that don't compete creates an insurmountable penalty for not competing, especially if first has a value of 100.

Using this method, the relative value of a one point gain in each event is equal to the assigned weighting. Gaining one position in the team race (assigned weight of 20%) is worth almost three times as many points as gaining one position in the match race (assigned weight of 7%).

The Fowle Trophy conditions don't indicate when the current methodology was implemented, but I suspect it was around 2009 when the semifinals were added and the Fowle calculations got more complicated. The good news is that I believe this year is the first time since then that the results have actually been impacted by the error. In the attached spreadsheet you will find the current calculation methodology (and recreated results for the past four years), the methodology proposed above (and recalculated results for recent years), and the hypothetical current calculation if you doubled the number of boats in the match racing championship to show how the effective weight changes. I only included this year's top four teams in the recreated results for past years since I don't have the information on which teams were actually in the top four each year. However, it's likely that at least three of these teams were in the running each year, and it provides a point of comparison on how the results would change for a small sample of teams.

The solution I've outlined here probably isn't the only solution, and it should certainly be pressure tested to ensure it makes sense. And there may well be a more elegant way to properly apply the weighting to equalized values across the championships. Regardless of what the solution is, I am confident that the current method is not working as intended and needs to be changed. This is one way to potentially get there.

As an aside, the change I've outlined above is roughly consistent with the way [ISAF's match racing ranking methodology](#) works, except that ICSA would be giving points to teams that don't compete in order to minimize the penalty for not competing in an event. I realize that ISAF rankings aren't generally viewed as highly effective so on the surface may not look like the best comparison to use to make my case that this is the right solution! However, the problem with the ISAF rankings is actually the massive penalty for not competing in the minimum number of counting events, thereby incurring one or more DNCs/zero point events. People always wonder why an AC skipper isn't highly ranked and it's typically because they may have competed in 1 or 2 graded events, but the rankings count total points for four events per year. By giving points to DNC teams, you would eliminate that massive penalty. The rest of ISAF's math is actually quite logical, and they don't change the position value spread for each event depending on the number of competitors. First is worth 100, second worth 90, etc. They actually close to a smaller gap for positions below 10th, which increases the importance of places within the top of the fleet. I wouldn't recommend this for the ICSA. But it does illustrate that the gap in value between positions is a critical variable that the ICSA is currently misusing.