

## Cox-Sprague Scoring System

The points are awarded using the table below. In each race the number of starters determines the column to be used. Each boat is credited with the number of points indicated for her finishing place. The boats that do not finish (DNF), retire (RET) or are disqualified (DSQ) get points for the place equal to the number of starters plus one. Boats that do not start (DNS) or do not compete (DNC) are not scored and get zero points for the race they miss. Points for duty are the average points for the season. These scores are 'hot' in the sense that the average will vary as the season progresses.

## Percentage of Average Scores

Since each boat is scored only in the races in which it participates, this gives each boat a chance to compete for the series awards without the need to enter every race.

**The percentage system outlined below is not used.** Instead the best 75% of the race scores for each of the individual competitors are added up for the season score. This allows each person to drop several races (3 or 4 for Championship and Pointscore races and 10-15 for Sprints), including one or more DNS zero scores. The system is still heavily weighted towards participation.

**For percentage scores,** a boat needs to qualify or start with a minimum number of races, typically 40% to 60% of all races in the series, to be eligible for series prizes. For example, if a boat places 2nd among 5 boats in one race and 3rd among 4 in another, the boat earns 46 out of a possible 52 in the first race and 33 out of a possible 43 in the second. Its percentage for the two races it sailed is  $(46+33)/(52+43) = 79/95 = 83.16\%$ .

A boat that wins every race it enters earns a series percentage score of 100%. A boat that finishes last in a race receives percentage scores ranging from 59% ( $=59/100$ ) in a 20 boat race to 67.7% ( $=21/31$ ) in a three boat race. The original Cox-Sprague table awarded 40% to a boat finishing second in a two boat race. The table below has been modified to award 70% for the second place finish in a two boat race and 50% for DNF or DSQ in a two boat race for consistency with the rest of the table.



## Comparison of High and Low Scoring System with Cox-Sprague

Note: the table below uses percentages for Cox-Sprague, but because each yacht competes in each race the results are the same as for a simple total.

So, what does this mean in practical terms? Let's make up some finishes in a fictional series that highlights the differences between Cox-Sprague and High Point scoring. In this simple example, six boats sail in four races allowing us to throw in a simple (not average) low point score for comparison. I used the new [raceScore App](#) to do the scoring. It's easy to generate both High Point and Cox-Sprague scores from the same set of finishes using raceScore.

Low Point						High Point		Cox Sprague	
boat #	race 1	race 2	race 3	race 4	points	boat #	points	boat #	points
202	2	2	2	2	8	202	83.333	101	91.667
101	1	1	1	6	9	101	79.167	202	90.000
330	5	4	3	3	15	330	54.167	310	79.167
310	3	6	6	1	16	310	50.000	330	78.750
320	6	3	5	4	18	320	41.668	320	74.583
340	4	5	4	5	18	340	41.667	340	74.167

Under both Low Point and High Point average scoring systems, boat 202 wins. However, with Cox-Sprague, boat 101 comes out on top. 101's poor 6th place finish in race 4 doesn't impact the overall Cox-Sprague average as much as it does under High Point (or straight low point).

It's the same situation with the 3rd and 4th place boats. 310's relatively poorer finishes in races 2 and 3 doesn't negatively impact 310's Cox-Sprague series score as much as it does under the other scoring systems. Or, in other words, 330's more consistent performance is overshadowed by 310's first place in race 4. A scoring system that penalizes poor finishes relatively less, rewards good finishes relatively more.

Scores for boats 320 and 340 exhibit the same fundamental difference – they're tied under Low Point and High Point systems with the tie breaker going to 320 because her 3rd in race 2 beats 340's best finish in any race (e.g. 320 and 340 have the same number of firsts and seconds – zero. But, 320 has more 3rds and wins the tie-breaker).

However, with Cox-Sprague, 320 gets a higher score outright – no tie.

To summarize, when choosing a scoring system for a long running series, either Cox-Sprague or High Point work well to rank competitor's finishes even when the competitors may not compete head to head in every race.

If your Fleet prioritizes individual race performance, then Cox-Sprague rewards better finishes by not penalizing poor finishes as harshly as High Point. On the other hand, if consistency is valued, then High Point is a better choice.

Rewarding individual race performance was the philosophy behind Olympic scoring years back. A first place in an Olympic fleet came with a huge scoring bonus. With increased challenges of running races for larger fleets, an emphasis on consistency discourages competitors from trying high risk, high reward tactics.

In balance, experience shows that the differences between High Point and Cox-Sprague are subtle. The winner of a series is typically the same regardless of the scoring system chosen. Other variables (available in raceScore) have a more significant impact on overall results. And, the use of throwouts can help influence the scoring system chosen.