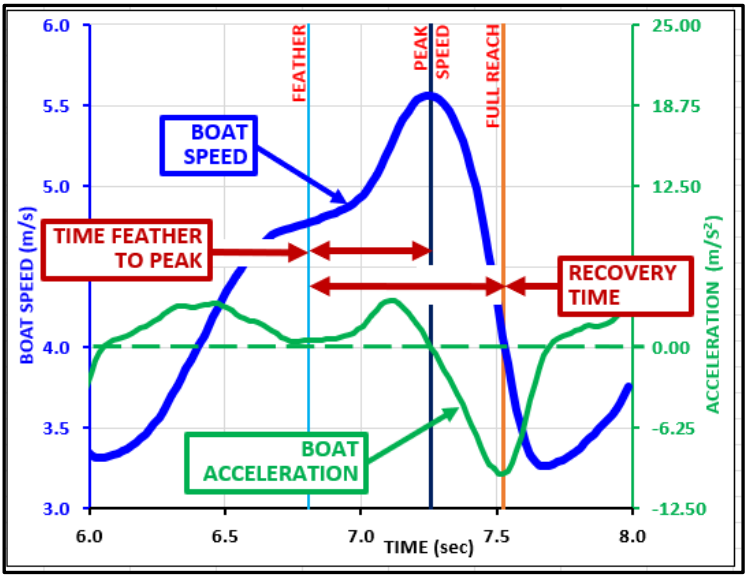
2.9.6 Recovery Peak Speed

Boat acceleration on the recovery is caused by the athlete pulling (accelerating) the footstops towards their body's centre of mass as they move from the finish position toward the catch. Recovery peak boat speed (RPS) is the percentage of the recovery time (feather to full reach) the boat takes to achieve peak speed. Figure 2.9.6a Recovery Peak Speed identifies the recovery time and the time to feather to peak speed.

Figure 2.9.6a *Recovery Peak Speed*



The peak boat speed as a percentage of the recovery time is calculated by dividing the recovery time by the time feather to peak, as shown in the following calculation.

$$\mathbf{RPS} = (Vt_{ps} - Vt_f) \Big/ (Vt_{fr2} - Vt_f)$$

where: Vt_f - video time feather
Vt_{fr2} - video time full reach 2
Vt_{ps} - video time peak boat speed

The recovery to peak speed percentage measures the crew's ability to extend boat acceleration during recovery. Figure 2.9.6b Percent to Peak Singles Pairs includes

trendlines for each boat class that suggest higher percentages may be a performance factor.

Figure 2.9.6b *Percent to Peak Singles Pairs*

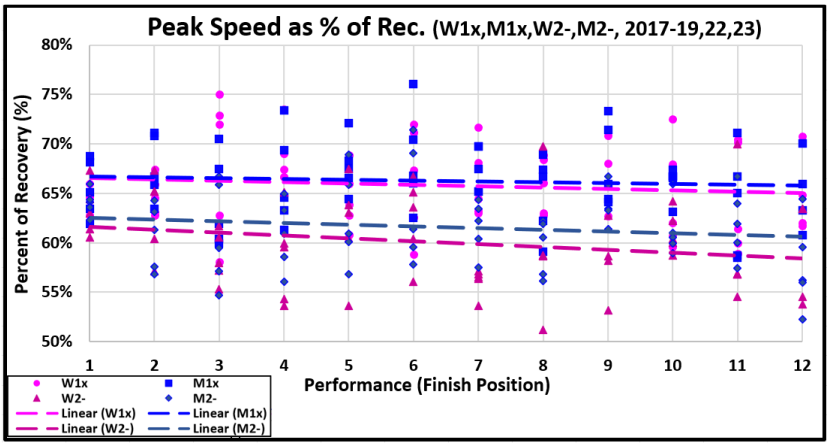


Figure 2.9.6c Percent to Peak Data shows the values for various boat classes at the World Championships. The data also includes the standard deviation, minimum, maximum, and the number of crews in the sample.

Figure 2.9.6c *Percentage to Peak Data*

Boat Class	**Peak Spd. % Rec.**	Standard Deviation	Min.	Max	Data Ref. (# of crews)
W1x	**65.9%**	4.1%	58.1%	75.0%	(59) WC '17,'18,'19,'22,'23
W2x	**61.8%**	3.3%	55.8%	66.0%	(16) WC '19, '22, '23
W4x	**61.3%**	2.7%	56.3%	65.9%	(18) WC '17,'23
W2-	**60.1%**	4.5%	51.2%	70.0%	(59) WC '17,'18,'19,'22,'23
W4-	**60.1%**	3.6%	51.2%	65.2%	(18) WC '19,'23
W8+	**58.4%**	3.7%	49.0%	64.3%	(40) WC '17,'18,'19,'22,'23
M1x	**66.2%**	3.8%	58.5%	76.0%	(59) WC '17,'18,'19,'22,'23
M2x	**64.4%**	4.2%	56.6%	71.4%	(17) WC' 19,' 22, '23
M4x	**63.0%**	3.7%	56.5%	69.5%	(14) WC '17,'23
M2-	**61.6%**	3.9%	52.3%	71.4%	(60) WC '17,'18,'19,'22,'23
M4-	**60.7%**	4.2%	53.4%	68.9%	(18) WC '17,'19,'23
M8+	**60.4%**	4.4%	47.6%	67.5%	(51) WC '17,'18,'19,'22,'23

The ability of the crew to extend boat acceleration during recovery is critical to performance. The rowing technique utilized is called dynamic recovery, meaning the arms, torso and legs work together to move the bodies from the finish position to full reach. The momentum from the athlete's centre of mass must be transferred to the boat through the legs by pulling on the footstops. Acceleration on the recovery is critical, as constant speed on the slide results in the boat slowing due to resistance on the hull. The acceleration rate must be high enough to provide a force greater than the force of the resistance on the hull, or the boat will slow.

The key to extending peak speed is that the athletes in the crew must move together on the slide at the same constant acceleration rate and as far as possible toward the next full reach. Extended crew acceleration toward the next catch requires the crew to have a very effective catch that minimizes entry time.