How hauling works – simply quantified

by Alastair Gowans

Assuming no haul and that the line length is 40ft and that the time taken to cast – acceleration to the stop is 0.4 seconds. Ave speed =100ft/s

Now we add a 4ft haul to the cast, the line end travels 4ft further within the time so the average speed is now 110ft/s.

Also for same effort applied by the caster's rod hand
Force = Ma (mass x acceleration)
Mass is reduced by an average of 4 x 100/(40x2) = 5% so for the same effort the acceleration increases by 5%.

Velocity = at (acceleration x time) and since t is remains the same velocity increases by 5% or 5ft/s.

Ignoring additional rod loading there is a predicted 15% increase in average line speed. Max speed will be greater.

C/f "Casting Angles" Mac Brown gives values of 117.83 and 96.57 ft/s for with and without a haul, a measured increase of 22% which enables longer distances to be achieved, better wind penetration and less casting arm effort/more control.

Hauls – approximate graphical representation

Red – Vr = line speed due to the rod alone

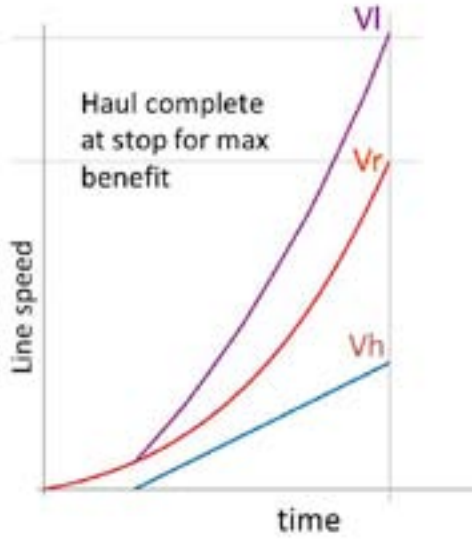
Blue – Vh = line speed from the haul

Purple – Vl = sum of the rod and haul speed

Figure 1

Haul timing is critical for success.

Hauls must be smooth and must not adversely affect the rod tip path.



Hauls – approximate graphical representation

Red – Vr = line speed due to the rod alone

Blue – Vh = line speed from the haul

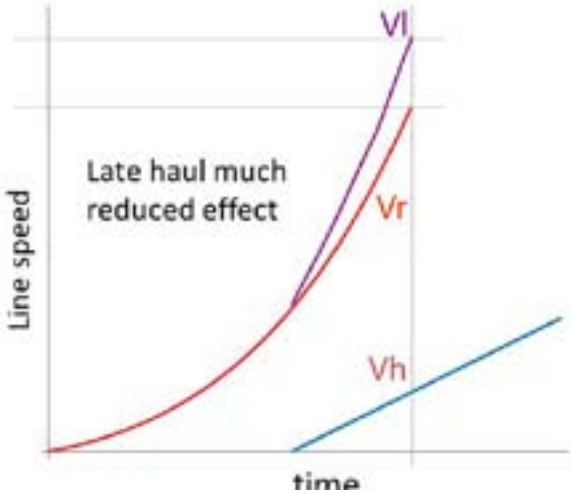
Purple – Vl = sum of the rod and haul speed

Haul timing is critical for success.

Hauls must be smooth and must not adversely affect the rod tip path.

A late haul can have little or no benefit but if smooth it is unlikely to destroy the cast.

Figure 2



Hauls – approximate graphical representation

Red – Vr = line speed due to the rod alone

Blue – Vh = line speed from the haul

Purple – Vl = sum of the rod and haul speed

Haul timing is critical for success.

Hauls must be smooth and must not adversely affect the rod tip path.

A late haul can have little or no benefit but if smooth it is unlikely to destroy the cast.

A haul that completes before the cast can cause a catastrophic failure as the rod tip recovers during the stoke – a tailing loop is the minimum likely penalty!

Jerky hauls never work!

Figure 3