Example

A new cable car connecting the Triplets with Percopo Hall is moving at a constant velocity $V_0 = 30$ m/s when suddenly the cable drops and the cable car starts taking on water from Speed Lake. If the car can be modeled as a car with a scoop as shown in the figure below, calculate the deceleration of the cart when it has taken on 100 kg of water. The car has a mass of 100 kg when empty, and the scoop has a width of $w = 1$ m, extending a depth of $h = 2$ cm into Speed Lake. Assume there is no friction between the cable and the rollers.