Supplementary Data 1.—An expression for the total drag, $D_T$, produced by the model is found by integrating Eq. 1 over the length of the arm, from 0, to $h$ where $y$ is the variable of integration:

$$
\int_0^h \frac{1}{2} C_D \rho U^2 dy
$$

(5)

$$
S = (b_0 + (b_1 - b_0)/h)y
$$

(6)

$$
U = (V/h)y
$$

(7)

$$
D_T = \frac{1}{2} C_D \rho \int_0^h ((b_0 + (b_1 - b_0)/h)y)((V/h)y)^2 dy
$$

(8)

$$
D_T = \frac{1}{2} C_D \rho \left( \frac{b_0 V^2 h}{3} + \frac{b_1 - b_0 V^2 h}{4} \right)
$$

(9)

where variables are as stated in the text. A simplified form of Eq. 9 is provided in the text as Eq. 3. To determine the total drag produced by multiple arms in a power stroke the result in Eq. 9 must be multiplied by the number of arms.