

Memo: Comparative analysis with SacPAS for pulse-flow scenarios

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$$V_{fish} = \beta_0 + \beta_1 \bar{V} \left[ \frac{1}{1 + e^{-\alpha_1(Q - Q_{crit}) - \alpha_2(D - D_{crit})}} \right] + \varepsilon$$

Migration equation settings

	$\alpha_1$	$\alpha_2$	$Q_{crit}$	$D_{crit}$	$\beta_0$	$\beta_1$
	intensity of flow effect	intensity of day effect	Flow above which fish are moved	Day after which flow can influence migration	background migration rate	scale fish velocity to water velocity
Regardless of day-of-year, flow at or above critical rate will move fish proportional to water velocity, else they move at background rate	1	0 <sup>a</sup>	10.8 <sup>b</sup>	~	1	0.5 <sup>c</sup>

<sup>a</sup>Remove the “wait until critical day” effect, so  $D_{crit}$  value is moot.

<sup>b</sup>Michel (pers. comm. Dec. 2020)

<sup>c</sup>Based on interpretation of Steel et al 2020 migration rates and water velocity estimates (0.5 – 0.75 at flows: 8.5 – 17.7)