SUPPLEMENTAL INFORMATION

Table S1. Results of univariate variable selection for correlation between log-transformed movement rate (river kilometer per week; rkm/wk) or probability of movement and 12 predictor variables documented for transmitted *Cycleptus elongatus* in the Missouri River in Montana from 2006–2014. Predictor variables are sorted by *P*-values (*P*), then alphabetically. Predictor variables that are bolded indicate those that were associated with the response variable with $P < 0.10$ and included in subsequent model selection. Photoperiod predictor variables were not included in subsequent model selection for movement rate because of correlations with discharge—see methods for details.

	Movement rate		**Probability of movement**	
	Variable	*P*-value	Variable	*P*-value
1	**Discharge**	<0.001	**Discharge**	<0.001
2	**Discharge^2**	<0.001	**Discharge^2**	<0.001
3	**Season**	<0.001	**Season**	<0.001
4	**Water temperature**	<0.001	**Water temperature**	<0.001
5	**Water temperature^2**	<0.001	**Water temperature^2**	<0.001
6	**Photoperiod**	<0.001	Year	0.122
7	**Photoperiod^2**	<0.001	Photoperiod	0.186
8	Monitoring period	0.336	Photoperiod^2	0.162
9	Year	>0.417	Mass	0.340
10	Tagging location	>0.883	Monitoring period	0.472
11	Length	0.921	Tagging location	>0.512
12	Mass	0.757	Length	0.633

Table S2. The two top-ranked models (of 32 total models) for log-transformed movement rate (river kilometer per week, rkm/wk) of transmitted *Cycleptus elongatus* in the Missouri River in Montana from 2006–2014. Models are sorted by corrected Akaike information criterion (AIC_C) with log likelihood (Log lik.), difference in AIC_C from the best supported model (ΔAIC_C), and model weights (AIC_W). These models (i.e., those within < 4 AIC_C of the top model) were included in the top model set and multimodel inference.

Num.	**Model**	**df**	**Log lik.**	**AIC_C**	**ΔAIC_C**	**AIC_W**
1	Discharge + Discharge^2 + Season	9	-5244.7	10507.5	0.00	0.87
2	Discharge + Discharge^2 + Season + Water temperature^2	10	-5245.6	10511.3	3.72	0.14

Table S3. The six top-ranked models (of 32 total models) for movement probability of transmittered *Cycleptus elongatus* in the Missouri River in Montana from 2006–2014. Models are sorted by corrected Akaike information criterion (AICc) with log likelihood (Log lik.), difference in AIC_C from the best supported model (ΔAICc), and model weights (AICw). These models (i.e., those within < 4 AICc of the top model) were included in the top model set and multimodel inference.

Num	Model	df	Log lik.	AICc	ΔAICc	AICw
1	Discharge + Discharge^2 + Season + Water temperature	8	-1631.4	3278.8	0.00	0.35
2	Discharge + Discharge^2 + Season + Water temperature + Water temperature^2	9	-1630.8	3279.8	0.98	0.22
3	Discharge + Discharge^2 + Water temperature	6	-1634.0	3280.1	1.29	0.19
4	Discharge + Discharge^2 + Water temperature^2	6	-1634.7	3281.4	2.64	0.10
5	Discharge + Discharge^2 + Season + Water temperature^2	8	-1632.8	3281.7	2.92	0.08
6	Discharge + Discharge^2 + Water temperature + Water temperature^2	7	-1634.0	3282.0	3.26	0.07