

Supplementary Table 3. Annual cross correlations comparing the $\log_{10}+1$ daily mean estimated rate (fish/hour) of alewife (AW) and blueback herring (BBH) with the weighted change in daily mean water temperature (Δ Temp), mean stream flow (Flow), and lunar phase (Lunar) in the Choptank River. Correlation coefficients that exceed the 95% CI are indicated in bold italics.

Choptank River											
Year	Species	Factor	Lags (days)								
			-4	-3	-2	-1	0	1	2	3	4
2014	AW	Δ Temp	-0.02	0.04	0.14	<i>0.42</i>	<i>0.53</i>	0.18	-0.22	<i>-0.43</i>	-0.31
		Flow	-0.19	-0.14	-0.07	-0.20	-0.20	0.15	<i>0.33</i>	0.24	0.13
		Lunar	-0.10	-0.07	-0.04	-0.01	0.00	-0.02	-0.04	-0.09	-0.15
	BBH	Δ Temp	-0.08	0.02	0.32	<i>0.65</i>	<i>0.47</i>	0.04	-0.23	-0.27	-0.15
		Flow	0.06	0.29	<i>0.40</i>	0.22	-0.34	-0.32	-0.19	0.04	0.20
		Lunar	-0.22	-0.30	-0.34	-0.31	-0.26	-0.20	-0.14	-0.08	-0.03
2015	AW	Δ Temp	-0.10	-0.11	0.12	<i>0.45</i>	<i>0.66</i>	0.29	0.06	-0.19	-0.28
		Flow	-0.04	0.03	-0.04	<i>-0.48</i>	<i>-0.55</i>	-0.34	-0.14	0.12	0.24
		Lunar	0.19	0.21	0.22	0.20	0.16	0.03	0.00	-0.05	-0.02
	BBH	Δ Temp	<i>0.52</i>	<i>0.76</i>	<i>0.76</i>	<i>0.44</i>	-0.03	<i>-0.51</i>	<i>-0.65</i>	<i>-0.45</i>	-0.21
		Flow	<i>-0.48</i>	-0.19	0.08	0.20	0.28	0.27	0.25	0.20	0.10
		Lunar	0.11	0.02	-0.05	-0.12	-0.15	-0.19	-0.22	-0.25	-0.27
2016	AW	Δ Temp	0.09	<i>0.30</i>	<i>0.52</i>	<i>0.53</i>	<i>0.35</i>	0.08	-0.14	-0.27	-0.18
		Flow	0.20	0.17	0.25	0.28	0.24	0.24	<i>0.36</i>	<i>0.45</i>	<i>0.45</i>
		Lunar	0.20	0.27	<i>0.33</i>	<i>0.38</i>	<i>0.40</i>	<i>0.41</i>	<i>0.41</i>	<i>0.38</i>	<i>0.33</i>
	BBH	Δ Temp	0.14	0.23	<i>0.36</i>	<i>0.34</i>	0.04	-0.26	<i>-0.29</i>	-0.23	-0.22
		Flow	-0.22	-0.15	-0.12	-0.17	-0.22	-0.16	-0.10	-0.07	-0.04
		Lunar	<i>0.43</i>	<i>0.42</i>	<i>0.38</i>	<i>0.32</i>	0.24	0.22	0.22	0.18	0.07
2017	AW	Δ Temp	<i>-0.33</i>	<i>0.03</i>	<i>0.48</i>	<i>0.62</i>	<i>0.34</i>	-0.14	<i>-0.50</i>	<i>-0.54</i>	<i>-0.33</i>
		Flow	0.25	-0.08	<i>-0.41</i>	-0.25	<i>-0.26</i>	<i>-0.40</i>	-0.19	-0.03	0.07
		Lunar	-0.07	-0.08	-0.09	-0.10	-0.12	-0.12	-0.16	-0.15	-0.13
	BBH	Δ Temp	-0.09	-0.05	0.03	0.12	0.21	0.08	-0.20	<i>-0.37</i>	<i>-0.35</i>
		Flow	-0.04	0.01	-0.02	-0.18	<i>-0.37</i>	<i>-0.41</i>	<i>-0.29</i>	-0.19	-0.07
		Lunar	-0.15	-0.18	-0.22	-0.25	-0.26	<i>-0.33</i>	<i>-0.38</i>	<i>-0.40</i>	<i>-0.39</i>

Supplementary Table 4. Annual cross correlations comparing the log₁₀+1 daily mean estimated rate (fish/hour) of alewife (AW) with the weighted change in daily mean water temperature (Δ Temp), mean stream flow (Flow), and lunar phase (Lunar) in Deer Creek. Correlation coefficients that exceed the 95% CI are indicated in bold italics.

			Deer Creek								
Year	Species	Factor	Lags (days)								
			-4	-3	-2	-1	0	1	2	3	4
2015	AW	Δ Temp	-0.39	-0.03	0.08	0.10	0.09	0.03	0.07	0.03	-0.07
		Flow	0.05	0.00	-0.05	-0.04	-0.01	0.06	-0.23	-0.73	-0.26
		Lunar	-0.12	-0.08	-0.05	0.06	0.29	0.50	0.65	0.60	0.29

Supplementary Table 5. Annual cross correlations comparing the log₁₀+1 daily mean estimated rate (fish/hour) of alewife (AW) and blueback herring (BBH) with the weighted change in daily mean water temperature (Δ Temp), mean stream flow (Flow), and lunar phase (Lunar) in Marshyhope Creek. Correlation coefficients that exceed the 95% CI are indicated in bold italics.

			Marshyhope Creek								
Year	Species	Factor	Lags (days)								
			-4	-3	-2	-1	0	1	2	3	4
2013	AW	Δ Temp	0.00	0.36	0.53	0.53	0.41	0.15	0.03	-0.13	-0.13
		Flow	0.38	0.21	0.43	0.30	0.30	0.20	0.02	-0.10	-0.14
		Lunar	0.27	0.26	0.25	0.00	-0.11	-0.20	-0.22	-0.20	-0.18
	BBH	Δ Temp	-0.59	-0.08	0.42	0.64	0.45	0.10	-0.25	-0.46	-0.41
		Flow	0.46	0.25	-0.09	-0.47	-0.68	-0.51	-0.02	0.40	0.36
		Lunar	-0.12	0.06	0.23	0.30	0.36	0.30	0.36	0.38	0.34
2014	AW	Δ Temp	-0.13	-0.20	0.09	0.59	0.67	0.35	-0.02	-0.41	-0.33
		Flow	0.31	0.12	-0.08	-0.54	-0.75	-0.28	-0.06	0.25	0.04
		Lunar	-0.22	-0.27	-0.30	-0.28	-0.31	-0.39	-0.29	0.00	0.05
	BBH	Δ Temp	-0.01	-0.18	0.04	0.22	0.35	0.06	-0.06	-0.17	-0.27
		Flow	0.02	0.15	0.06	0.00	-0.07	-0.08	-0.11	-0.05	0.08
		Lunar	0.19	0.11	-0.05	-0.25	-0.51	-0.53	-0.55	-0.59	-0.62

Supplementary Table 6. Annual cross correlations comparing the log₁₀+1 daily mean estimated rate (fish/hour) of alewife (AW) and blueback herring (BBH) with the weighted change in daily mean water temperature (Δ Temp), mean stream flow (Flow), lunar phase (Lunar), and mean turbidity (Turb) in the Patapsco River. Correlation coefficients that exceed the 95% CI are indicated in bold italics.

Patapsco River											
Year	Species	Factor	Lags (days)								
			-4	-3	-2	-1	0	1	2	3	4
2016	AW	Δ Temp	-0.28	-0.23	0.17	0.60	0.59	0.17	-0.09	0.05	0.32
		Flow	-0.06	-0.13	0.02	0.26	0.20	-0.11	-0.30	-0.29	-0.21
		Lunar	-0.12	-0.06	0.04	0.16	0.27	0.33	0.39	0.43	0.46
		Turb	-0.13	-0.12	0.13	0.42	0.08	-0.33	-0.43	-0.31	-0.13
	BBH	Δ Temp	0.10	-0.13	-0.07	0.23	0.33	-0.08	-0.38	-0.37	-0.11
		Flow	0.19	0.25	0.46	0.63	0.53	0.37	0.40	0.47	0.36
		Lunar	-0.31	-0.42	-0.52	-0.59	-0.63	-0.67	-0.64	-0.58	-0.49
		Turb	0.16	0.31	0.55	0.62	0.33	0.14	0.31	0.45	0.27
2017	AW	Δ Temp	-0.18	0.05	0.06	0.00	0.01	-0.08	-0.18	-0.11	0.00
		Flow	-0.07	-0.07	-0.27	0.17	0.29	0.05	0.01	0.04	0.06
		Lunar	-0.35	-0.48	-0.47	-0.44	-0.44	-0.37	-0.28	-0.19	-0.11
		Turb	-0.02	-0.03	-0.23	0.16	0.35	0.07	-0.06	-0.04	0.00
	BBH	Δ Temp	-0.49	-0.38	-0.14	0.44	0.59	0.60	0.36	-0.15	-0.40
		Flow	-0.11	0.00	0.17	0.18	0.10	-0.47	-0.52	-0.34	-0.40
		Lunar	-0.11	-0.23	-0.29	-0.40	-0.53	-0.59	-0.61	-0.60	-0.55
		Turb	-0.25	-0.11	-0.01	0.06	0.03	-0.44	-0.57	-0.28	-0.26
2018	AW	Δ Temp	0.33	0.04	-0.31	-0.86	-0.81	-0.04	0.22	0.47	0.32
		Flow	-0.03	0.31	0.03	0.09	0.22	-0.05	-0.03	-0.04	0.00
		Lunar	0.20	0.24	0.26	0.26	0.25	0.09	-0.13	-0.27	-0.52
		Turb	0.03	0.29	-0.06	-0.01	0.03	0.00	0.04	0.06	0.10
	BBH	Δ Temp	0.10	0.12	0.16	0.08	-0.19	-0.35	-0.50	-0.34	0.03
		Flow	0.01	0.34	0.52	0.64	0.73	0.39	0.29	0.17	0.05
		Lunar	-0.23	-0.17	-0.06	0.07	0.23	0.51	0.52	0.54	0.51
		Turb	0.14	0.48	0.57	0.60	0.55	0.07	0.01	-0.05	-0.09
2019	AW	Δ Temp	0.59	0.37	0.18	0.32	0.35	-0.23	-0.64	-0.58	-0.29
		Flow	-0.46	-0.50	-0.52	-0.08	0.07	0.17	0.21	0.16	0.25
		Lunar	-0.03	0.12	0.31	0.47	0.61	0.71	0.74	0.58	0.36
		Turb	-0.11	-0.07	-0.06	0.29	0.61	0.45	0.21	0.37	0.58
	BBH	Δ Temp	-0.07	-0.01	0.19	0.39	0.11	0.07	-0.42	0.14	0.34
		Flow	-0.40	-0.44	-0.23	-0.09	0.00	-0.04	-0.12	0.05	-0.15
		Lunar	-0.15	-0.25	-0.36	-0.42	-0.45	-0.29	-0.26	-0.23	-0.19
		Turb	-0.20	-0.16	0.00	0.04	0.04	-0.12	-0.29	0.03	-0.15