

Supplementary Materials: Will Dam Removal Increase Nitrogen Flux to Estuaries?

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Table S1. Nitrogen Removal Dams of Rhode Island: Attributes and Tradeoffs.

Dam Name ¹	Lat	Long	Stream Order	Pond Area (km ²)	Watershed Area (km ²)	% N Removal	N Loading kg N ha ⁻¹ Year ⁻¹	Safety Hazard ²	NCAT Rank ³
<i>Nonquit Pond</i>	41.553	-71.197	2	0.78	18.32	39.7	5	<i>Signif</i>	0%–5%
Watson, Harold E, Res	41.544	-71.190	1	1.46	8.43	59.9	8	High	5%–10%
Harris Pond	41.461	-71.756	1	0.07	3.68	28.5	2	Signif	5%–10%
Warren Reservoir Upper	41.740	-71.259	2	0.07	13.53	9.1	8	Signif	5%–10%
Almy Reservoir	41.815	-71.521	1	0.23	5.36	39.8	8	High	
Arnold Pond	41.668	-71.750	1	0.31	9.67	35.3	3	High	
Asa Pond	41.458	-71.513	1	0.09	2.74	36.0	9	High	
Belleville Pond	41.560	-71.473	2	0.64	14.16	40.4	6	High	
Black Rock Reservoir	41.720	-71.554	1	0.07	1.76	38.4	7	High	
Boone Lake	41.582	-71.678	1	0.17	6.84	32.1	4	High	
Bowdish Lower	41.924	-71.782	1	0.02	4.38	9.4	3	High	
Bowdish Reservoir	41.925	-71.778	1	0.02	4.25	9.8	2	High	
Bridlewood Pond	41.910	-71.459	1	0.03	0.14	61.5	8	High	
Burlingame Reservoir Upper	41.914	-71.742	1	0.30	5.15	43.9	1	High	
Curran Lower Reservoir	41.742	-71.545	1	0.07	3.31	30.3	8	High	
Easton Pond South	41.490	-71.287	2	0.53	12.83	39.1	11	High	
Georgiaville Pond	41.893	-71.507	3	0.40	82.84	8.0	6	High	
Handy Pond Upper	41.959	-71.472	1	0.03	2.61	20.7	7	High	
Hawkins Pond	41.918	-71.795	2	0.04	11.15	3.9	3	High	
Keech Pond	41.884	-71.688	2	0.94	14.79	45.3	3	High	
Locustville Pond	41.509	-71.716	3	0.33	35.20	17.6	3	High	
Miscoe Lake	42.008	-71.417	2	0.18	31.06	10.8	7	High	
Oak Swamp Reservoir	41.826	-71.538	1	0.40	2.10	61.3	10	High	
Pascoag Reservoir Upper	41.951	-71.705	1	1.38	21.04	45.8	3	High	
Pawtucket Reservoir	41.981	-71.391	3	2.31	77.89	34.4	6	High	
Peace Dale Pond	41.452	-71.495	2	0.14	26.72	9.5	5	High	
Ponaganset Reservoir	41.868	-71.742	1	0.87	5.00	59.9	3	High	
Simmons Upper Reservoir	41.797	-71.520	1	0.24	6.65	37.3	6	High	
Sisson Pond	41.556	-71.278	1	0.25	3.63	46.5	11	High	
Slack Reservoir	41.869	-71.553	1	0.51	4.21	54.6	8	High	
Sprague Lower Reservoir	41.885	-71.545	2	0.12	3.60	36.0	7	High	
Sprague Upper Reservoir	41.892	-71.563	1	0.11	1.39	49.1	4	High	
Stillwater Reservoir	41.909	-71.542	3	0.89	62.46	23.8	6	High	

Stone Pond	41.791	-71.490	1	0.02	1.35	25.7	9	High
Waterman Lake	41.878	-71.577	3	0.81	20.39	38.6	4	High
Wenscott Reservoir	41.872	-71.464	2	0.20	7.27	33.3	6	High
Westconnaug Reservoir	41.772	-71.677	2	0.71	10.53	46.1	2	High
Yawgoog Pond	41.517	-71.781	1	0.68	7.05	51.4	2	High
Yorker Mill Pond	41.522	-71.523	1	0.06	9.84	10.8	8	High
Ashville Pond	41.500	-71.751	1	0.09	0.66	56.8	3	Signif
Caesarville Pond	41.846	-71.487	1	0.02	3.70	7.4	7	Signif
Canada Upper Pond	41.855	-71.426	1	0.07	5.04	22.3	10	Signif
Cherry Valley Pond	41.874	-71.674	1	0.07	0.87	49.6	4	Signif
Coomer Lake	41.880	-71.623	2	0.07	7.54	17.6	3	Signif
Cross Mills	41.383	-71.642	1	0.87	4.47	61.5	7	Signif
David King Farm Pond	41.900	-71.649	1	0.02	0.40	37.8	2	Signif
Edward'S Pond	41.582	-71.541	1	0.02	4.87	4.3	1	Signif
Gale Farm Pond Upper	41.656	-71.479	1	0.02	1.81	20.1	10	Signif
Hawkins Pond	41.863	-71.545	1	0.11	0.50	62.5	8	Signif
Kimball Reservoir	41.838	-71.565	1	0.11	1.18	50.5	5	Signif
Melville #1	41.592	-71.278	1	0.03	2.13	23.1	10	Signif
Middle Pond	41.700	-71.554	1	0.03	1.35	30.7	8	Signif
Moswansicut Pond	41.841	-71.583	1	1.13	8.73	55.6	7	Signif
Mower Pond	41.914	-71.654	1	0.08	2.60	34.9	4	Signif
Nichols Pond	41.956	-71.600	3	0.08	15.75	9.6	3	Signif
Pine Swamp Reservoir #1	41.817	-71.574	1	0.15	1.53	51.9	5	Signif
Simmons Pond	41.536	-71.148	2	0.09	4.70	27.7	3	Signif
Smith + Sayles Reservoir	41.902	-71.677	2	0.94	20.04	41.0	3	Signif
Snakeskin Pond	41.921	-71.658	2	0.02	4.12	9.6	4	Signif
Sucker Pond	41.936	-71.671	1	0.23	1.18	61.9	6	Signif
Union Mill Pond	41.955	-71.703	1	1.38	21.04	45.8	3	Signif
Upper Pond	41.705	-71.554	1	0.09	0.92	52.2	9	Signif
Warren Reservoir Lower	41.730	-71.263	2	0.09	14.39	12.4	8	Signif
Wincheck Pond	41.520	-71.762	2	0.62	12.97	41.3	2	Signif
Wood River Junction	41.438	-71.691	2	0.09	15.50	10.0	4	Signif
Austin Farm Pond	41.594	-71.667	1	0.01	3.43	5.7	5	
Betty	41.780	-71.569	1	0.10	2.06	41.2	3	
Breakheart Pond	41.595	-71.703	2	0.16	16.30	18.5	3	
Browning Mill Pond	41.558	-71.693	1	0.20	14.91	23.0	3	
Burlingame Pond	41.727	-71.571	1	0.02	1.90	20.8	6	
Cesario Pond	41.959	-71.558	1	0.03	3.67	17.1	3	
Davisville Mill Pond	41.616	-71.464	1	0.04	6.58	11.1	9	
Deans	41.664	-71.564	1	0.01	0.56	29.6	12	
Dolly Pond	41.566	-71.575	1	0.05	3.94	22.4	2	
Echo Lake	41.733	-71.334	1	0.06	5.50	20.4	12	
Factory Mutual Res Ctr Low	41.884	-71.782	1	0.04	5.15	16.0	2	

Factory Pond	41.389	-71.602	1	0.25	0.92	66.5	5
Fedorowicz Farm Pond	41.750	-71.535	1	0.03	0.17	59.0	16
Flat Top	41.678	-71.528	1	0.02	3.32	7.2	10
Gardner Farm Pond	41.944	-71.537	1	0.02	0.25	44.4	2
Gorton Pond/Rt 5	41.703	-71.461	1	0.22	3.31	45.8	11
Grassy Pond	41.540	-71.775	1	0.09	1.50	45.2	2
Haberek Farm Pond	41.489	-71.703	1	0.03	0.24	54.9	2
Hall Central	41.710	-71.620	1	0.02	2.08	16.6	4
Hall Lower	41.708	-71.622	1	0.10	4.02	32.4	3
Hallville Pond	41.567	-71.571	1	0.02	4.25	7.8	2
Harris Pond	41.914	-71.506	1	0.03	1.91	27.0	9
Indian Lake	41.476	-71.474	1	1.64	3.36	74.8	6
James Pond	41.575	-71.641	1	0.09	3.15	33.0	3
Kettle Hole	41.547	-71.490	1	0.04	1.13	35.0	8
Koszela	41.689	-71.700	1	0.02	1.35	26.4	3
Lake Bel Air	41.956	-71.583	1	0.02	0.19	49.4	10
Lincoln Downs	41.888	-71.445	1	0.02	2.80	10.6	7
Mingola Pond	41.961	-71.562	1	0.01	3.16	4.7	3
Money Swamp Pond	41.593	-71.615	1	0.02	1.27	21.1	1
Mountindale Reservoir	41.885	-71.536	1	0.06	4.50	21.5	8
Mowry-Paine Pond	41.929	-71.616	2	0.02	6.04	3.4	2
New Pond	41.909	-71.657	1	0.02	0.69	32.4	6
Peacedale Reservoir	41.452	-71.513	1	0.05	1.61	35.0	8
Peckham Pond #3	41.868	-71.693	1	0.04	0.90	41.0	2
Pine Swamp Reservoir #2	41.820	-71.573	1	0.15	4.12	37.6	5
Pocasset Upper	41.831	-71.511	1	0.03	0.67	39.8	5
Ponaganset School Pond	41.865	-71.712	1	0.01	0.61	25.8	4
Porter Pond	41.734	-71.730	1	0.04	0.91	38.5	3
Pratt Pond	42.010	-71.577	1	0.02	1.48	18.9	10
Rathbon Pond	41.603	-71.619	2	0.03	7.38	5.2	3
Reaper Pond	41.864	-71.542	1	0.01	0.87	22.1	9
Richardson Marsh	41.939	-71.780	1	0.03	2.30	23.0	1
Shingle Mill Pond Upper	41.902	-71.686	1	0.05	4.85	19.1	2
Simmons #2	41.539	-71.145	2	0.03	4.79	12.8	3
Simmons #3	41.536	-71.143	2	0.03	4.99	12.2	3
Social Park Pond Lower	42.009	-71.509	1	0.03	0.68	39.0	11
Spencer Farm Pond #2	41.824	-71.716	1	0.02	1.17	27.8	3
Spring Street Pond	41.522	-71.758	2	0.05	13.24	3.4	2
Steere'S Sawmill Pond	41.924	-71.664	1	0.05	7.56	13.8	4
Swampy	41.445	-71.487	1	0.03	4.47	14.3	6
Theater Pond	41.831	-71.608	1	0.01	0.61	29.5	6
Thompson Pond	41.920	-71.609	1	0.03	1.12	33.9	2
Tillinghast Pond	41.649	-71.759	1	0.18	1.17	58.0	3

Trout Pond	41.951	-71.642	1	0.02	3.86	7.6	4
Whites Pond	41.890	-71.774	1	0.02	2.41	16.0	2
Willett Pond Upper	41.778	-71.355	1	0.01	3.35	6.1	7
Wolf Hill Road Pond	41.886	-71.515	1	0.02	0.21	49.0	6
Woody Hill Reservoir	41.377	-71.738	1	0.02	1.10	28.0	1
Yawgoo Pond	41.507	-71.569	1	0.70	5.18	56.3	3
Young'S Pond	41.833	-71.752	1	0.03	4.42	13.5	2

Notes: ¹ Dams in *italic bold* are under local consideration for enhancements for migratory fish habitat (James Turek, Restoration Ecologist, U.S. National Oceanic and Atmospheric Administration Restoration Center, personal communication, 26 June 2016); ² High or Significant Safety Hazard, per defined by the state of Rhode Island [1]; ³ Ranking within the Northeast USA in terms of priority for dam removal for anadromous fish restoration [2]; Lower percent equals higher priority.

References

1. Rhode Island Geographic Information System (RIGIS). *Rhode Island Dams*; Environmental Data Center, University of Rhode Island: Kingston, RI, USA, 2001. Available online: <http://www.rigis.org/data/dams> (accessed on 15 December 2015).
2. Martin, E.H.; Ape, C.D. *Northeast Aquatic Connectivity: An Assessment of Dams on Northeastern Rivers*; Eastern Freshwater Program; The Nature Conservancy: Brunswick, ME, USA, 2011. Available online: <http://rcngrants.org/content/northeast-aquatic-connectivity> (accessed on 24 May 2016).