

Table 1: 1997 Water Withdrawals for Golf Course Irrigation in Michigan, by County*

County	Number of Courses	Irrigated Acres	Water Withdrawn (MGD)			Total
			Great Lakes	Surface Water	Ground Water	
Alcona	4	183	0.00	0.04	0.09	0.13
Allegan	9	509	0.00	0.24	0.20	0.44
Alpena	2	135	0.00	0.08	0.07	0.15
Antrim	6	389	0.00	0.33	0.23	0.56
Arenac	1	84	0.00	0.00	0.13	0.13
Barry	6	484	0.00	0.17	0.23	0.40
Bay	5	223	0.00	0.15	0.04	0.20
Benzie	4	286	0.00	0.00	0.44	0.44
Berrien	12	649	0.00	0.23	0.10	0.33
Branch	1	37	0.00	0.02	0.00	0.02
Calhoun	9	568	0.00	0.19	0.19	0.38
Cass	5	396	0.00	0.14	0.31	0.45
Charlevoix	4	201	0.00	0.05	0.10	0.15
Cheboygan	2	184	0.00	0.13	0.03	0.15
Chippewa	4	240	0.04	0.07	0.31	0.42
Clare	2	59	0.00	0.08	0.01	0.09
Clinton	4	114	0.00	0.00	0.14	0.14
Crawford	2	125	0.00	0.04	0.10	0.13
Delta	4	237	0.00	0.19	0.01	0.20
Dickinson	3	122	0.00	0.24	0.09	0.32
Eaton	6	290	0.00	0.12	0.05	0.18
Emmet	7	921	0.00	0.00	0.72	0.72
Genesee	21	1,117	0.00	0.71	0.37	1.08
Gladwin	2	78	0.00	0.00	0.04	0.04
Grand Traverse	7	462	0.00	0.19	0.44	0.62
Gratiot	3	110	0.00	0.04	0.02	0.06
Hillsdale	2	53	0.00	0.06	0.00	0.06
Houghton	1	80	0.00	0.00	0.00	0.00
Huron	4	221	0.00	0.00	0.15	0.15
Ingham	11	642	0.00	0.10	0.37	0.46
Ionia	5	151	0.00	0.06	0.07	0.13
Iosco	2	135	0.00	0.30	0.01	0.32
Iron	1	110	0.00	0.00	0.04	0.04

County	Number of Courses	Irrigated Acres	Water Withdrawn (MGD)			Total
			Great Lakes	Surface Water	Ground Water	
Isabella	5	324	0.00	0.27	0.00	0.27
Jackson	14	711	0.00	0.09	0.47	0.56
Kalamazoo	12	853	0.00	0.46	0.40	0.86
Kent	27	1,655	0.00	0.42	1.34	1.76
Lake	1	40	0.00	0.00	0.02	0.02
Lapeer	5	238	0.00	0.02	0.08	0.10
Leelanau	4	256	0.04	0.00	0.20	0.24
Lenawee	7	191	0.00	0.07	0.09	0.16
Livingston	11	767	0.00	0.16	0.48	0.64
Luce	1	28	0.00	0.00	0.01	0.01
Mackinac	3	52	0.02	0.00	0.06	0.07
Macomb	24	1,960	0.05	1.29	0.20	1.54
Manistee	5	297	0.00	0.01	0.28	0.29
Marquette	4	206	0.00	0.21	0.00	0.21
Mason	2	60	0.00	0.04	0.16	0.19
Mecosta	4	331	0.00	0.28	0.04	0.32
Menominee	1	55	0.00	0.12	0.00	0.12
Midland	1	44	0.00	0.04	0.00	0.04
Missaukee	1	70	0.00	0.00	0.04	0.04
Monroe	7	538	0.00	0.15	0.29	0.44
Montcalm	7	269	0.00	0.23	0.06	0.29
Montmorency	2	196	0.00	0.18	0.00	0.18
Muskegon	11	743	0.02	0.22	0.50	0.74
Newaygo	5	283	0.00	0.04	0.21	0.26
Oakland	48	3,595	0.00	1.82	1.56	3.38
Oceana	5	203	0.00	0.13	0.23	0.37
Ogemaw	4	228	0.00	0.11	0.04	0.14
Osceola	1	61	0.00	0.00	0.07	0.07
Oscoda	3	442	0.00	0.31	0.04	0.35
Otsego	11	1,152	0.00	0.05	0.59	0.64
Ottawa	10	537	0.00	0.27	0.29	0.56
Presque Isle	2	88	0.00	0.02	0.09	0.10
Roscommon	3	120	0.00	0.05	0.10	0.15
Saginaw	9	542	0.00	0.40	0.04	0.44
Sanilac	2	92	0.06	0.00	0.08	0.14
Schoolcraft	1	32	0.00	0.06	0.00	0.06

County	Number of Courses	Irrigated Acres	Water Withdrawn (MGD)			Total
			Great Lakes	Surface Water	Ground Water	
Shiawassee	4	154	0.00	0.12	0.02	0.14
St. Clair	13	546	0.16	0.29	0.02	0.47
St. Joseph	3	127	0.00	0.14	0.00	0.14
Tuscola	3	70	0.00	0.03	0.01	0.04
Van Buren	2	159	0.00	0.21	0.00	0.21
Washtenaw	22	1,162	0.00	0.77	0.41	1.18
Wayne	23	1,308	0.04	0.95	0.20	1.19
Wexford	5	262	0.00	0.12	0.08	0.20
Total	499	30,642	0.42	14.09	13.91	28.42

*This report is provided by the Michigan Department of Environmental Quality and was generated using data collected for the water use reporting program.

Table 2:**1997 Water Withdrawals for Golf Course Irrigation
in Michigan, by Hydrologic Basin***

Hydrologic Basin Code	Number of Courses	Irrigated Acres	Water Withdrawn (MGD)			Total
			Great Lakes	Surface Water	Ground Water	
04020103	1	80	0.00	0.00	0.00	0.00
04020105	2	106	0.00	0.09	0.00	0.09
04020202	1	28	0.00	0.00	0.01	0.01
04020203	1	40	0.00	0.00	0.06	0.06
04030106	1	110	0.00	0.00	0.04	0.04
04030108	4	177	0.00	0.35	0.09	0.44
04030110	2	100	0.00	0.13	0.00	0.13
04030111	3	235	0.00	0.19	0.00	0.19
04030112	1	2	0.00	0.00	0.01	0.01
04040001	3	137	0.00	0.04	0.02	0.06
04050001	24	1,383	0.00	0.86	0.42	1.28
04050002	3	105	0.00	0.13	0.02	0.14
04050003	32	1,949	0.00	0.72	1.00	1.72
04050004	29	1,534	0.00	0.25	0.87	1.12
04050005	3	91	0.00	0.05	0.07	0.12
04050006	38	2,173	0.00	0.68	1.55	2.24
04050007	10	614	0.00	0.32	0.18	0.50
04060101	18	925	0.02	0.29	0.87	1.17
04060102	19	1,243	0.00	0.64	0.54	1.19
04060103	6	374	0.00	0.06	0.26	0.32
04060104	10	613	0.04	0.10	0.79	0.93
04060105	23	1,970	0.00	0.47	1.36	1.83
04060106	1	32	0.00	0.06	0.00	0.06
04060107	1	15	0.00	0.00	0.06	0.06
04070001	4	202	0.04	0.07	0.25	0.36
04070002	1	35	0.01	0.00	0.00	0.01
04070003	4	118	0.00	0.05	0.08	0.12
04070004	6	734	0.00	0.09	0.45	0.54
04070005	1	58	0.00	0.02	0.07	0.08
04070006	6	461	0.00	0.26	0.15	0.41
04070007	13	1,209	0.00	0.74	0.32	1.06
04080101	6	352	0.00	0.11	0.18	0.29
04080102	4	147	0.00	0.14	0.04	0.18

Hydrologic Basin Code	Number of Courses	Irrigated Acres	Water Withdrawn (MGD)			Total
			Great Lakes	Surface Water	Ground Water	
04080103	4	147	0.00	0.01	0.09	0.10
04080104	5	325	0.12	0.02	0.14	0.28
04080201	5	161	0.00	0.08	0.06	0.14
04080202	8	418	0.00	0.35	0.00	0.35
04080203	19	1,022	0.00	0.48	0.63	1.10
04080204	24	1,296	0.00	0.73	0.41	1.14
04080205	5	169	0.00	0.15	0.01	0.17
04080206	1	80	0.00	0.01	0.03	0.04
04090001	8	338	0.10	0.23	0.00	0.33
04090002	8	471	0.05	0.22	0.08	0.36
04090003	38	2,969	0.00	1.82	0.55	2.37
04090004	35	2,281	0.04	1.20	0.56	1.80
04090005	39	2,549	0.00	1.50	1.13	2.62
04100001	7	645	0.00	0.26	0.24	0.51
04100002	10	383	0.00	0.13	0.19	0.32
04100006	2	36	0.00	0.01	0.01	0.03
Total	499	30,642	0.42	14.09	13.91	28.42

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Hydrologic Basins in Michigan: U.S. Geological Survey

04020103	Keweenaw Peninsula	04060101	Pere Marquette-White	04080104	Birch-Willow
04020105	Dead-Kelsey	04060102	Muskegon	04080201	Tittabawassee
04020202	Tahquamenon	04060103	Manistee	04080202	Pine
04020203	Waiska	04060104	Betsie-Platte	04080203	Shiawassee
04030106	Brule	04060105	Boardman-Charlevoix	04080204	Flint
04030108	Menominee	04060106	Manistique	04080205	Cass
04030110	Escanaba	04060107	Brevoort-Millecoquin	04080206	Saginaw
04030111	Tacoosh-Whitefish	04070001	Saint Marys	04090001	Saint Clair
04030112	Fishdam-Sturgeon	04070002	Carp-Pine	04090002	Lake Saint Clair
04040001	Little Calumet-Galien	04070003	Lone Lake-Qcqueoc	04090003	Clinton
04050001	Saint Joseph	04070004	Cheboygan	04090004	Detroit
04050002	Black-Macatawa	04070005	Black	04090005	Huron
04050003	Kalamazoo	04070006	Thunder Bay	04100001	Ottawa-Stony
04050004	Upper Grand	04070007	Au Sable	04100002	Raisin
04050005	Maple	04080101	Au Gres-Rifle	04100006	Tiffin
04050006	Lower Grand	04080102	Kawkawlin-Pine		
04050007	Thornapple	04080103	Pigeon-Wiscoggin		

