West Branch Maple River
Emmett County
Cheboygan River Watershed, Last Surveyed 2025

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Environment

The West Branch Maple River is 16 miles long and drains 93 square miles of land. The entire river is in Emmet County, and arises from the Pleasantview Swamp, a 6,544-acre uninterrupted expanse of organic soils (Tip of the Mitt Watershed Council 2006). This coniferous swamp is surrounded by hardwood ridges which direct the river flow to the north, then east, and then south. Gradient of the river is low in the headwater swamp area but increases towards its confluence with East Branch Maple River. Notable tributaries include Brush Creek, which is the outlet of Larks Lake, and Cold Creek. Despite both tributaries being designated trout streams, they are considered marginal trout waters and probably only receive trout seasonally. The upper reaches of the West Branch Maple River, in the Pleasantview Swamp, may also be marginal trout water, but groundwater inputs increase considerably downstream. The river begins in a low-gradient swamp with little groundwater and warmer temperatures and ends with high gradient, high groundwater, and cold temperatures. Pellston is the only population center in this watershed (Figure 1). Maple River Dam was located immediately downstream of the confluence of the West Branch Maple River and East Branch Maple River near Woodland Road, forming Lake Kathleen until 2018 when the dam was removed.

The West Branch Maple River watershed has a mixture of underlying surficial geology types (MDNR 2024). These include moraines (29%), ice-contact/outwash (33%), lacustrine/dune (15%), and other (24%). These geological types support the following land cover / land use types within the watershed: forest (44%), wetland (25%), grass/shrub/scrub (14%), agriculture (10%), urban (5%), and water (2%).

The West Branch Maple River is a tributary to the Maple River, which originates at the confluence of the East and West Branches. The Maple River flows into Burt Lake at Maple Bay and is part of the Cheboygan River watershed. The West Branch Maple River has Type 1 trout stream regulations, which include a 7-in minimum size limit for Brook Trout, 8-in minimum size limit for Brown Trout and a 10-in minimum size limit for Rainbow Trout. The daily possession limit is five fish, with no more than three fish 15 inches or larger. The fishing and possession seasons are from the last Saturday in April through September.

Public land is abundant in this watershed, with much of the riparian zone upstream of Orchard or Camp Road in state ownership as well as state land upstream of east Robinson Road crossing. Little Traverse Conservancy maintains a small parking lot and land preserve at the east Robinson Road crossing as well.

Fishery Resource

History

Stocking

Fisheries management in the West Branch Maple River dates back at least to 1938, when 3,300 Brook Trout (including fall fingerlings, yearlings, and adults) were stocked in the river. Brook Trout were stocked consistently in the river through 1965. Many of the fish stocked during this period were large,

including in 1940, when 6,250 adult Brook Trout were stocked, in addition to more than 7,000 Brook Trout of earlier life stages. Typically 4,000 Brook Trout were stocked annually in what was primarily considered a "put and take" fishery. Brown Trout and Rainbow Trout were also stocked periodically. Stocking of trout was discontinued in 1966 when it was deemed that natural reproduction was adequate to sustain the population.

Arctic Grayling

The Maple River watershed was identified as a potential site for Arctic Grayling reintroduction efforts in recent years, and the West Branch Maple River was chosen by the Michigan Arctic Grayling Initiative (MAGI) as a location for stocking efforts. MAGI is a collaborative partnership between MDNR and almost 50 partners, including tribes, state agencies, non-profits, and other conservation organizations. Rather than stocking fingerling or yearling grayling, as had been done in previous reintroduction efforts, the updated approach is to stock viable grayling eggs into floating basket incubators in the stream itself. MDNR Fisheries Division raised the broodstock and conducted gamete collection, while Little Traverse Bay Bands of Odawa Indians (LTBB) received the eggs and placed them in the incubators. LTBB stocked approximately 171,174 viable eggs into the West Branch Maple River at three locations in 2025, the first year of the grayling stocking program. Follow-up evaluations will occur to determine stocking success.

Surveys

The first recorded trout survey of the West Branch Maple River was done in July 1954, when seven sites on the river were surveyed using an A.C. electrofishing unit. Only game fish were collected during the survey, including 33 Brook Trout, 19 Brown Trout, and three Rainbow Trout. Of the 19 Brown Trout that were collected, 15 were captured at a single site, immediately upstream of Maple River Dam.

The river was again surveyed in 1957 with hook and line, when it was classified as a fair to good Brook Trout fishery. That survey writeup indicated that a considerable amount of stream improvement work had been done, which had contributed greatly to the fishing. Documentation of that habitat work could not be found.

A 1958 survey was done using a DC electrofishing unit. Three species of trout (Brook, Brown, and Rainbow Trout) were found in good numbers at most of the sites surveyed. Stocking likely contributed to the abundance of these species at that time.

A 1973 report on the West Branch Maple River indicated that portions of the river were showing damage such as eroded stream banks, trampled vegetation, and nutrient enrichment from large-scale beef cattle grazing and the cattle's unrestricted access to the river. The report indicated that beef cattle grazing was becoming a major agricultural industry in the watershed.

The river was next surveyed in 1976, at Ely Road and Camp Road crossings using a D.C. electrofishing unit. The Brook Trout population was estimated in a 1000-foot reach at each site (Table 1). It was noted that Brown Trout were not found during the survey. Growth of Brook Trout at that time was good, with fish on average almost an inch above the statewide average length at age.

Brook Trout populations were again estimated in 1982 at Ely Road and Camp Road, as well as at Robinson Road (Table 1). Growth rates of Brook Trout at Robinson Road and Camp Road were the same as the 1976 survey (0.9 inches above state average length at age). Growth was even better at the Ely Road site, where Brook Trout were more than two inches (+2.1) larger on average than they are

statewide. It is not known what was causing the tremendous growth rates at that location, but it may have been due to agricultural runoff in the watershed contributing additional stream nutrients.

These stations were surveyed again in 1994 using a D.C. stream shocker, with the addition of the Robinson Road site (Table 1). The 1994 estimate was done using a pass-depletion method (Zippen), whereas the other population estimates had been done using mark-recapture (Peterson) methods.

Brook Trout populations were estimated in 1998 at the following sites: upstream of Ely Road, downstream of Ely Road, upstream of Robinson Road, and upstream of the old railroad grade (Table 1). This survey showed an overall healthy river Brook Trout population, with fish ranging from 2-13 inches in total length. Numbers of larger Brook Trout were reported to be lower than in the 1983 survey. Good natural reproduction was noted. Brown Trout and Rainbow Trout populations were also estimated at the Robinson Road station. Although the dam at Lake Kathleen was a barrier to fish migrating from Burt Lake, anglers would reportedly release steelhead upstream of the dam.

The West Branch Maple River at the east crossing of Robinson Road is a fixed survey site under Fisheries Division's Stream Status and Trends Program. The site is from the Robinson Road bridge upstream 1000 feet. Under the Stream Status and Trends Program (c.a. 2002), sites are sampled in three-year rotations (i.e., the site is sampled annually for three years, then not sampled for three years). Trout populations were estimated using the Chapman modification of the Peterson mark and recapture method (Lockwood and Schneider 2000, Wills 2011). Beginning in 2023, trout population estimates were done using a single-pass method. The single-pass method looks at historical electrofishing efficiencies and generates a population estimate based on a statistical regression of previous recapture runs. This report will examine surveys conducted as part of the Status and Trends Program beginning in 2002.

Brook Trout, Brown Trout, and Rainbow Trout were present in our surveys of West Branch Maple River at Robinson Road. Brook Trout dominated the catch in each of our surveys both numerically and in biomass (Tables 2-4, Figures 2-7). Brook Trout density ranged from a low of 702 per acre in 2004 to a high of 2225 per acre in 2002 (Table 2, Figure 2) at the 1000-ft Robinson Road site.

Trout growth rates are very good in the West Branch Maple River at the east crossing of Robinson Road compared with other quality trout streams throughout the state (Figure 8). In 2009, for instance, Brook Trout at this site were, on average, one inch larger than the statewide average length at age. Brown Trout were 0.8 inches larger than the statewide average length at age, but Rainbow Trout were 0.5 inches smaller than the statewide average.

Within the Stream Status and Trends era, Michigan Trout Unlimited also completed a population estimate at the Camp Road crossing of West Branch Maple River in 2019. The surveyed reach was 1000 feet in length and was from Camp Road downstream. The Brook Trout population estimate at Camp Road was 672 Brook Trout/acre, 36.8 pounds/acre, 2,023 Brook Trout/ mile.

Temperatures were monitored at several locations in the West Branch Maple River in 2020 as part of larger Maple River watershed-wide temperature study examining the effects of the removal of the Lake Kathleen Dam. Water temperatures were found to be colder downstream of the former dam location in 2020, showing improved suitability for trout. The thermal effect was even more pronounced further downstream, where the river at both Maple River Road and Brutus Road were classified as cold-transitional (marginal for trout) in 2010, but were classified as cold (suitable for trout) in 2020.

Habitat Changes

Free Span the Maple

In 1999, Conservation Resource Alliance (CRA) inventoried the road-stream crossings in the Maple River watershed and began the Free Span the Maple River initiative. CRA coordinated efforts with multiple partners and funding sources over the next 20 years to address stream crossings issues, fish habitat projects, and a dam removal within the Maple River watershed.

As part of the Free Span the Maple, the east Robinson Road crossing of the West Branch Maple River was replaced in 2015 by CRA and the Emmet County Road Commission. The previous crossing consisted of a number of perched culverts as well as the sill to an old dam. The perched culverts and water velocities at this crossing made it a barrier to fish passage and held back sediment in the stream channel. That crossing was replaced with a timber bridge, which improved both restricted fish passage and natural sediment transport at the crossing. Bridge replacement also resulted in significant channel downcutting/incision in our survey reach as well as uncovering gravel and woody material. This site has shown a decrease in sand substrate and an increase in gravel substrate since the crossing was replaced. The 2011 habitat survey showed substrate in the reach was 87% sand and 4% gravel, while it had improved to 80% gravel and 18% sand by the 2023 survey. This was accompanied by a slight decrease in average width and a slight increase in depth. These were indicators showing improvement in habitat upstream of the former road-crossing once it was replaced.

The Maple River Dam at Woodland Road was removed in late 2018 also as part of the Free Span the Maple River initiative. This dam formed Lake Kathleen and was located on the mainstem Maple River just downstream of the confluence of the East and West branches of the Maple River. This dam removal was important for reconnecting the watershed, defragmenting the ecosystem and allowing for aquatic organism passage. Dam removal allowed for Rainbow Trout and Brown Trout from the mainstem Maple River and Burt Lake to access the West Branch Maple River, beyond the limited numbers from anglers occasionally releasing these species upstream.

Current status of the fish community

Methods

A 1,000-foot reach of the West Branch Maple River upstream of of the east crossing of Robinson Road was surveyed using a D.C. electrofishing barge (stream shocker) with 3 anode probes on August 18, 2025. This is a fixed site in the Stream Status and Trends program (Wills et al. 2011). The survey was intended to be a mark-and-recapture survey, but heavy rain and high water precluded sampling on day two, so a recapture run was not conducted. Trout populations were estimated using the single-pass method implemented in 2023 and described previously. Trout population estimates for this 1,000-foot reach have been conducted on a three-year on, three-year off schedule since 2002.

Results

Brook Trout, Brown Trout, and Rainbow Trout were all present in the catch in the 2025 survey of the West Branch Maple River at the east crossing of Robinson Road. Brook Trout were present from 3-8 inches in total length, and the population was estimated to be 113 per acre and 5.0 pounds per acre (Tables 2 and 5). Brown Trout were present in lengths up to 22 inches and were estimated to be 179 per acre or 30 pounds per acre (Tables 3 and 5). Rainbow Trout up to 8 inches in total length were present, with estimated population metrics of 187 per acre and 3.2 pounds per acre (Tables 4 and 5). Overall, there were an estimated 479 trout (all species) per acre, and 38.2 pounds of trout (all species) per acre. Brook Trout growth continued to be good, with average lengths-at-age over 1 inch greater than the statewide average.

Analysis and Discussion

The West Branch continues to have a strong Brook Trout population but has changed somewhat in recent years to include more Brown Trout and Rainbow Trout. Several activities had an influence on this site that may have affected the fish community. Fish populations will continue to vary as the river channel adjusts to the changes listed below.

1) The Robinson Road east crossing of the river at this location was replaced in 2015 by CRA and the Emmet County Road Commission. The bridge replacement resulted in altered channel characteristics and fish habitat, including changes in velocity and substrate.

2) The Maple River Dam at Woodland Road was removed in late 2018. Dam removal improved temperatures in the lower part of the river as well as the mainstem Maple River and also allowed for Rainbow trout and Brown Trout from the mainstem Maple River and Burt Lake to access the West Branch Maple River. Note that these species were also present at Robinson Road prior to dam removal just at lower densities and biomass.

3) The Miller Van Winkle Chapter of Trout Unlimited (MVWTU) has worked with USDA-APHIS Wildlife Services in most years since 2019 to trap beaver populations and remove beaver dams in the West Branch Maple River watershed. Through 2024, MVWTU notched or removed more than 16 dams downstream of Pleasantview Road where beaver had been trapped by Wildlife Services.

Three species of trout (brook, brown, and rainbow) were captured at the Robinson Road survey station in 2025, similar to most of the previously surveyed years. Brook Trout density (number per acre) and biomass (pounds per acre) continued the declining trend (Table 2, Figures 2 and 3). In 2025, Brook Trout comprised 24% of the total trout numbers on a per acre basis and 13% of the total trout biomass per acre. Brown Trout biomass has been on an increasing trend long-term (Figure 5), with 2025 being the highest value. Brown Trout comprised 79% of the total estimated trout biomass per acre in 2025. Rainbow Trout populations have experienced a significant increase in the upper West Branch Maple River following the removal of the Lake Kathleen Dam and Robinson Road crossing improvement, allowing migratory trout access to upper river reaches from Burt Lake (Table 4, Figures 6 and 7). Variations in population metrics for some of these species may be attributable to natural yearly variation that occurs in wild trout populations, as compared to more consistent trends that may be observed for a species (e.g. declining Brook Trout). The presence and abundance of these trout species make the West Branch Maple a good trout fishery but also represent competition for the Arctic Grayling reintroduction efforts. Once the grayling eggs hatch, they face strong competition and potential predation from other trout species.

Management Direction

1. Continue to survey the West Branch Maple River at Robinson Road as a fixed site in the Stream Status and Trends program.
2. Maintain Type 1 trout stream regulations on this river, as they are appropriate for the protection of the Brook Trout population.
3. Continue to manage for naturally reproducing trout populations with no trout stocking intended.
4. Continue to work with Wildlife Services, DNR Wildlife Division, and others to control beaver population and remove beaver dams. This will improve water temperatures and fish passage.

5. Work with partners to restrict cattle access to Cold Creek, a tributary to the West Branch Maple River, along with erosion control and stream channel restoration at that site.
6. Work with partners and landowners to remove a dam on Cold Creek upstream of Van Road.
7. Continue to collaboratively monitor the river for survival of the Arctic Grayling stocked in the river and evaluate the success of the stocking site/program.

References

Lockwood, R.N., and J.C. Schneider. 2000. Stream fish population estimates by mark-and-recapture and depletion methods. Chapter 7 in Schneider, J.C. (ed.) 2000. Manual of fisheries survey methods II: with periodic updates. Michigan Department of Natural Resources, Fisheries Special Report 25, Ann Arbor.

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Wills, T.C., T.G. Zorn, A.J. Nuhfer, and D.M. Infante. 2011 Draft. Stream Status and Trends Programs sampling protocols. Chapter 26 *in* Manual of fisheries survey methods II: with periodic updates. Michigan Department of Natural Resources Fisheries Special Report 25, Ann Arbor.

Tables and Figures

Table 1. Brook trout population estimates at various sites in the West Branch Maple River, 1976-1998. The estimated number per acre is in parentheses, where reported. Population estimate methods are denoted as follows: * = Peterson Mark-Recapture, ** = Zippen Pass-Depletion.

Year	Robinson Rd (1000')	Camp Rd (1000')	Ely Bridge d/s (500')	Ely Bridge u/s (500')	Ely Bridge (1000')
1976*	--	132	--	--	622
1982*	379	314	--	--	453
1994**	197 (796)	--	--	--	--
1998*	765 (1,142)	430 (896)	227 (946)	354 (2,527)	--

Table 2. Brook Trout population metrics by year for the West Branch Maple River, at Robinson Road 2002-2025.

Year	No./Acre	Pounds/Acre	No./Mile	Length Range (in.)
2002	2225	54.0	8,108	1-11
2003	872	39.6	3,178	2-12
2004	702	38.1	2,557	2-11
2005	--	--	--	--
2006	--	--	--	--
2007	--	--	--	--
2008	1460	37.3	5,319	2-10
2009	1000	32.5	3,643	2-8
2010	899	50.0	3,514	2-10
2011	1170	28.1	4,077	2-10
2012	800	41.9	2,787	1-11
2013	--	--	--	--
2014	--	--	--	--
2015	--	--	--	--
2016	--	--	--	--
2017	943	41.9	3,088	2-14
2018	683	30.2	2235	2-14
2019	742	37.8	2,428	1-12
2023	332	18.7	1243	1-12
2024	220	12.9	677	1-13
2025	113	5.0	345	1-8
Average	869	33.4		

Table 3. Brown Trout population metrics by year for the West Branch Maple River at Robinson Road, 2002-2025.

Year	No./Acre	Pounds/Acre	No./Mile	Length Range (in.)
2002	169	5.4	617	2-11
2003	58	3.0	212	2-7
2004	138	5.1	502	2-11
2005	--	--	--	--
2006	--	--	--	--
2007	--	--	--	--
2008	108	7.8	393	2-17
2009	340	5.6	1,238	2-8
2010	127	11.9	497	3-13
2011	148	8.8	516	2-12
2012	427	12.8	1,488	2-14
2013	--	--	--	--
2014	--	--	--	--
2015	--	--	--	--
2016	--	--	--	--
2017	151	16.4	495	3-12
2018	283	22.3	925	2-18
2019	351	24.7	1,150	2-20
2023	138	25	517	2-21
2024	91	8.7	279	1-12
2025	179	30	548	1-22
Average	193	13.4	--	--

Table 4. Rainbow Trout population metrics by year for the West Branch Maple River at Robinson Road (2002-2025).

Year	No./Acre	Pounds/Acre	No./Mile	Length Range (in.)
2002	29	3.4	104	5-8
2003	20	0.8	71	1-6
2004	26	2.5	95	1-9
2005	--	--	--	--
2006	--	--	--	--
2007	--	--	--	--
2008	13	1.5	48	5-7
2009	22	0.4	79	1-6
2010	69	4.2	270	1-8
2011	20	2.6	71	6-8
2012	--	--	--	--
2013	--	--	--	--
2014	--	--	--	--
2015	--	--	--	--
2016	--	--	--	--
2017	820	8.9	2,686	1-8
2018	159	10.0	521	2-8
2019	310	2.4	1,014	0-9
2023	460	12.4	1725	1-8
2024	169	11.4	520	2-9
2025	187	3.2	572	1-8
Average	177	4.9	--	--

Table 5. Estimated number per inch group for brook, brown, and rainbow trout for the 1,000-foot survey reach of the West Branch Maple River at Robinson Road, 2025 using the single-pass expansion estimate.

Inch Group	Brook Trout	Brown Trout	Rainbow Trout
0	0	0	0
1	0	0	15
2	3	0	71
3	45	60	12
4	4	17	0
5	0	0	2
6	5	3	3
7	5	8	5
8	4	7	1
9	0	4	0
10	0	0	0
11	0	0	0
12	0	0	0
13	0	1	0
14	0	1	0
15	0	0	0
16	0	1	0
17	0	0	0
18	0	0	0
19	0	0	0
20	0	0	0
21	0	1	0
22	0	1	0

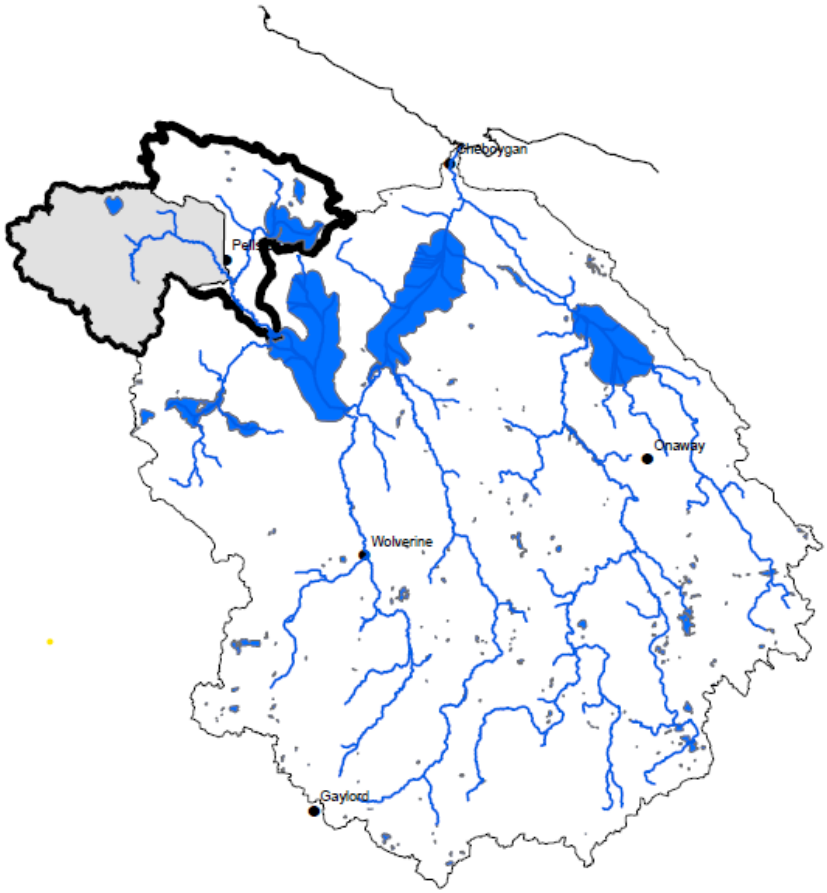

Figure 1. Map of the Cheboygan River watershed. The Maple River watershed is outlined in heavy black, while the West Branch Maple River watershed is shaded gray.

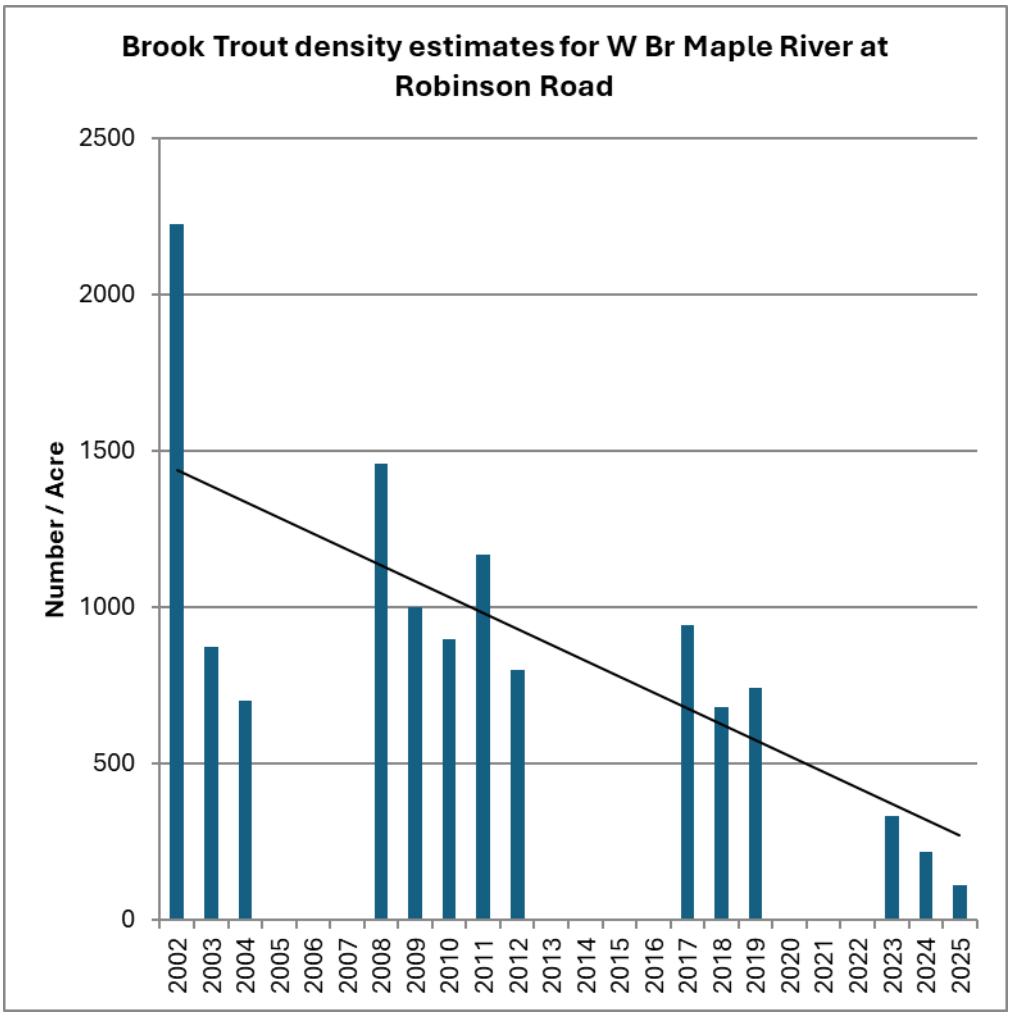

Figure 2. Brook trout density estimates (number per acre) with trend line.

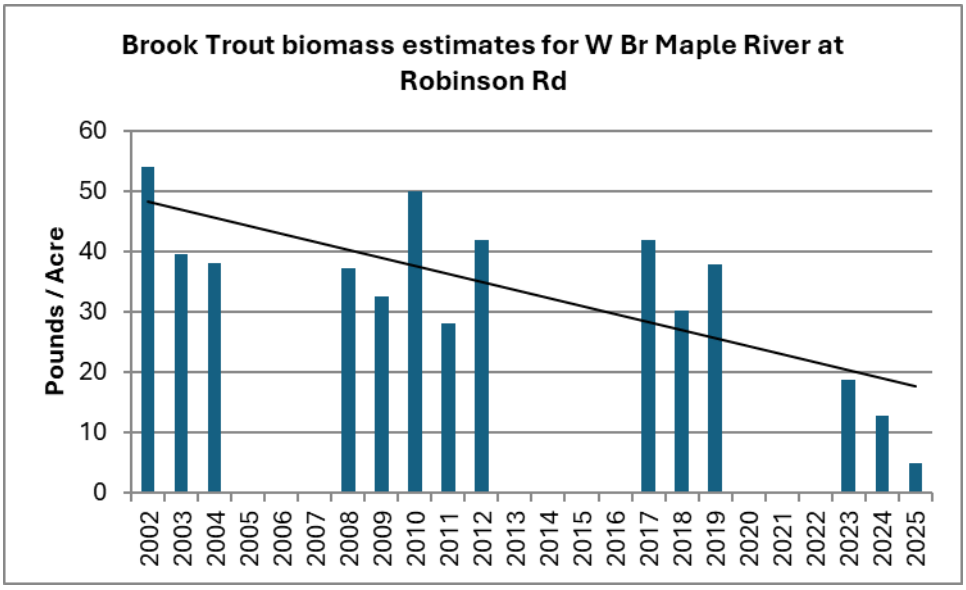

Figure 3. Brook trout biomass estimates (pounds per acre) with trend line.

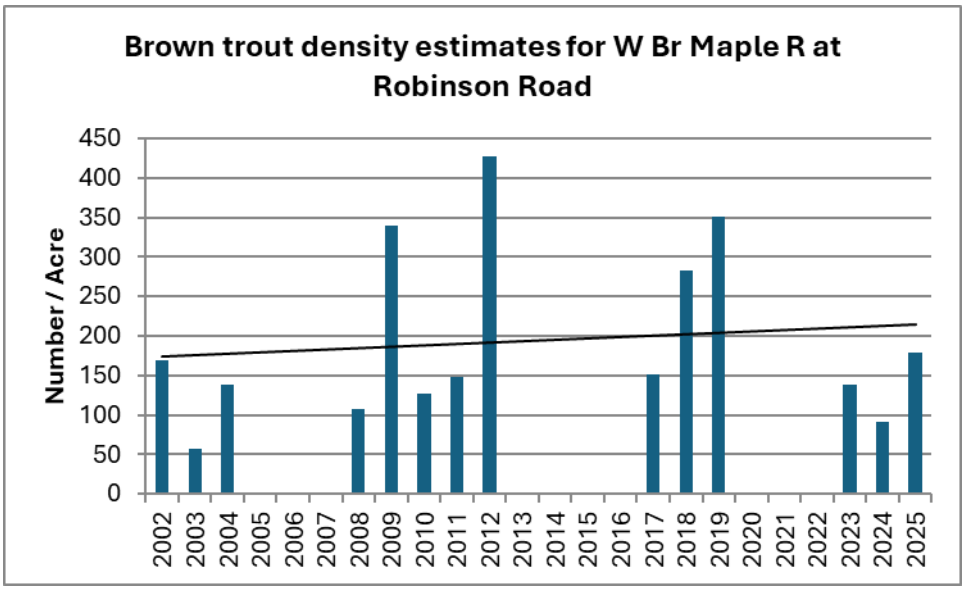

Figure 4. Brown Trout density estimates (number per acre) with trend line.

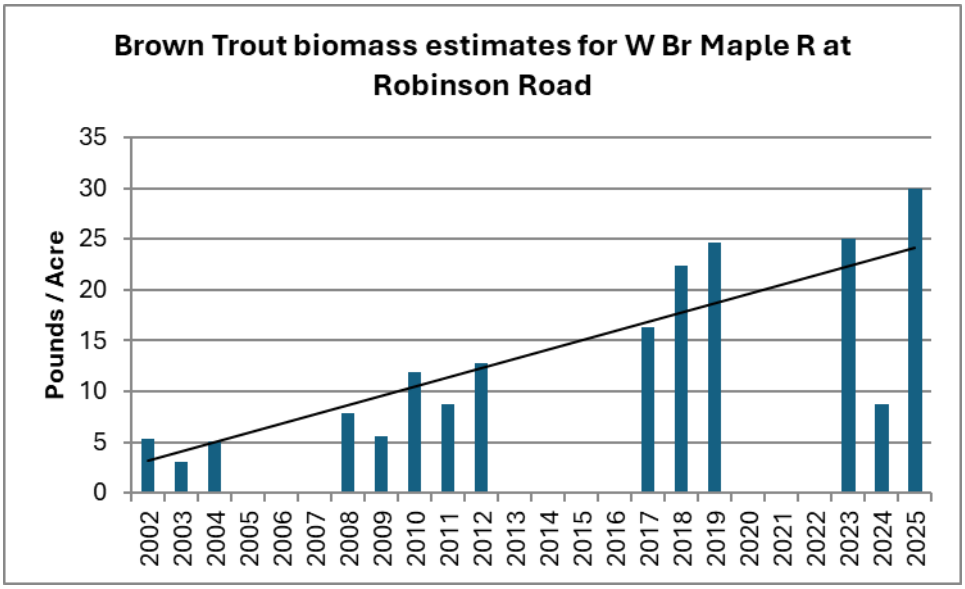

Figure 5. Brown Trout biomass estimates (pounds per acre) with trend line.

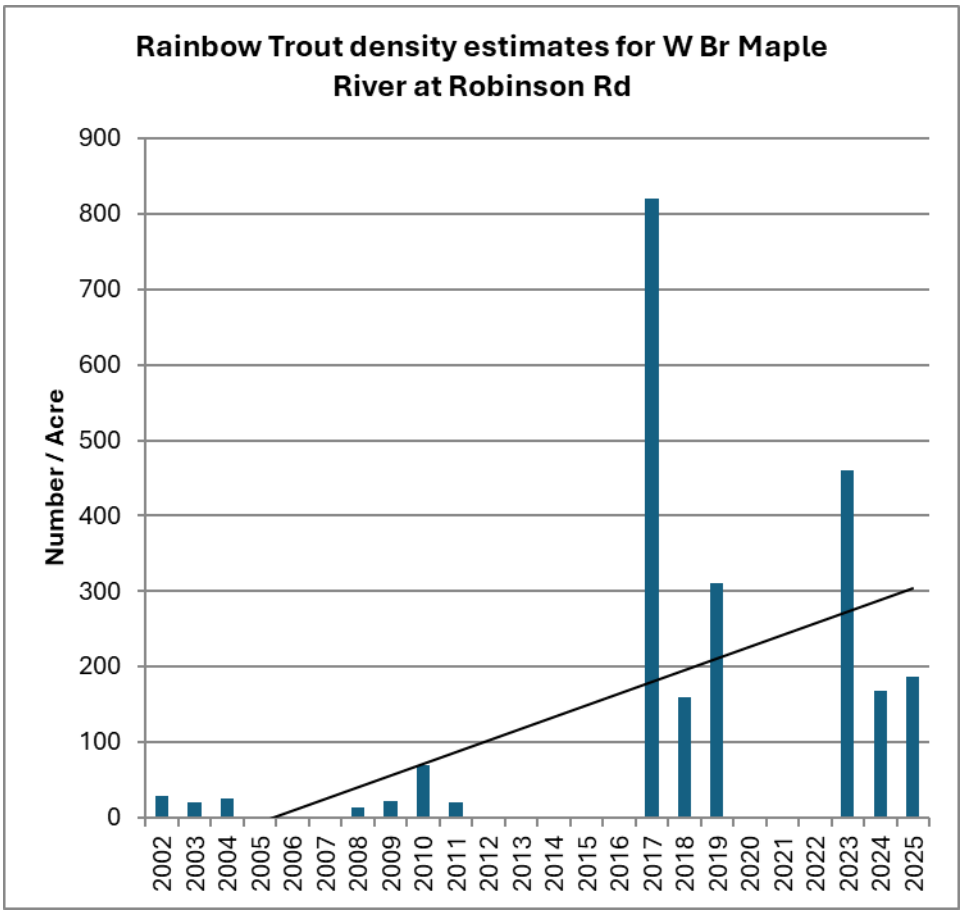

Figure 6. Rainbow Trout density estimates (number per acre) with trend line.

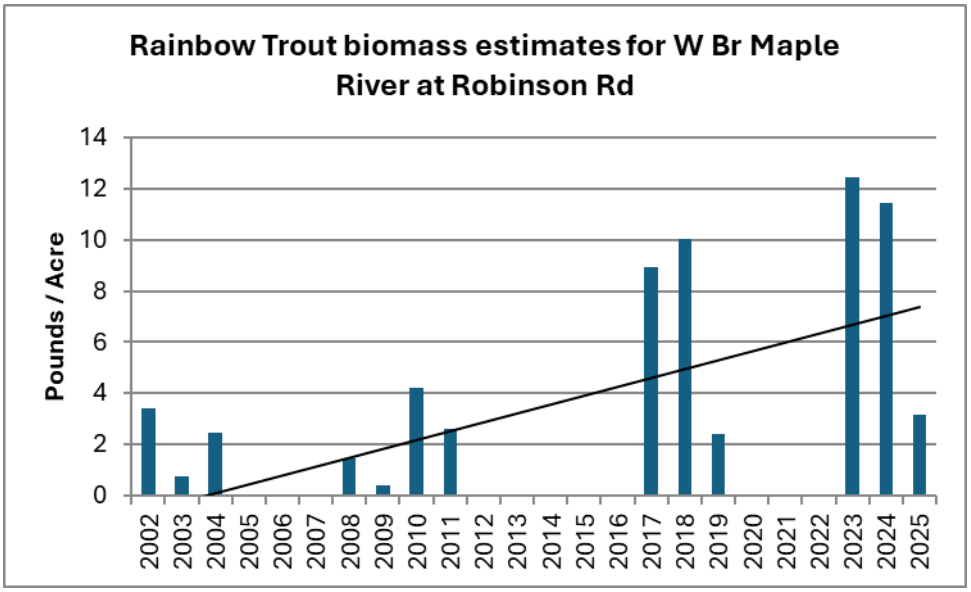

Figure 7. Rainbow Trout biomass estimates (pounds per acre) with trend line.

Literature Path

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Tim Cwalinski, Unit Review and Approval
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