Stony Creek

Oceana County
Stony Creek Watershed, last surveyed 2020

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Environment

Stony Creek is a tributary to Lake Michigan, entering the lake near the community of Stony Lake. The entire watershed lies in Oceana County and covers approximately 57 square miles (Lipsey 2012). Stony Creek begins as springs emanating from glacial moraines just northwest of the village of Shelby. Three spring creeks (Bender, Cargill, and Piper) join to form Stony Creek. From there, Stony Creek flows generally southwest for approximately 7 miles before entering Stony Lake. After leaving Stony Lake, Stony Creek flows for approximately one mile before entering Lake Michigan.

Stony Lake is a "drowned rivermouth lake" and its water level is directly influenced by the Lake Michigan water level, which has been near or above historically high levels for the past few years. There is a lowhead dam just below the outlet of Stony Lake, but for the last few years with high Lake Michigan water levels, the dam has been inundated. Under lower water conditions, the dam may serve as a fish passage barrier for non-jumping species such as Round Goby or White Sucker, but with the high water levels the dam does not serve as a barrier. Stony Lake is 276 acres and has maximum depth of approximately 43 feet. Stony Lake is known as an excellent fishing lake for many species, including Brown Trout, Bluegill, Black Crappie, Channel Catfish, Largemouth Bass, Northern Pike, Pumpkinseed Sunfish, Rock Bass, and Smallmouth Bass. Stony Lake was last surveyed by the Michigan Department of Natural Resources (MDNR) in 1986.

The highest elevation found in the Stony Creek watershed is a glacial moraine to the west of the headwaters, with an elevation of approximately 1,000 feet above sea level. Over its 7-mile course, Stony Creek drops approximately 78.7 feet, for an average gradient of 11.2 feet per mile. Discharge was measured in 2020 by MDNR at Marshville Dam and was 48.2 cfs. Walker (2003) measured the discharge of Stony Creek at Shelby Road (approximately 2.5 miles upstream from the Marshville site) at 43.2 cfs. The Stony Creek watershed has six named tributaries, including Cargill Creek, Bender Creek, Piper Creek, Burke Creek, Mason Creek, and Dorrance Creek. There are also several unnamed tributaries in the watershed, most of which are springs that emerge from the valley walls and flow a short distance into Stony Creek.

The landscape that forms the Stony Creek watershed is relatively undeveloped, consisting only of 11% developed area. The rest of the watershed landscape consists of agricultural land (38%), forests (32%), barren land (14%), and wetlands/open water (5%; Lipsey 2012). The stream corridor is heavily forested and most of the land in the watershed is privately owned, with only the Marshville Dam County Park providing public access to Stony Creek (other than road/stream crossings). For much of its length, Stony Creek flows through a deep, forested valley, with some forested wetlands present. The watershed has primarily sandy soils, allowing for groundwater intrusion and subsequent release into Stony Creek through springs.

Stony Creek and most of its tributaries are Designated Trout Streams (Fisheries Order 210). Stony Creek is classified as a top-quality trout mainstream, while its tributaries are top quality trout feeder streams (Anonymous 2000). Stony Creek and most of its tributaries are regulated as Type 1 trout streams, open to fishing from the last Saturday in April through September 30. The minimum size limits are 7 inches for Brook Trout, 8 inches for Brown Trout, and 10 inches for Rainbow Trout. A total of five trout can be kept per day, with no more than three fish over 15 inches. Stony Lake (and the short reach of Stony Creek between the lake and Lake Michigan) is designated as a Type F Lake, meaning that fishing is allowed year-round, with a 10-inch minimum size limit on all salmonids.

History

Historical information regarding Stony Creek is sparse. Because the watershed is relatively small and primarily in private ownership little public access exists, other than road-stream crossings. It is more likely anglers were (and still are) drawn to the larger, more easily accessed waters of nearby rivers like the White and Pere Marquette Rivers.

Although there are no known records of the original fish community of Stony Creek, Arctic Grayling was likely the only native salmonid inhabitant of the river, as Brook Trout were not native to the area. While there are no specific records of Arctic Grayling having been in Stony Creek, they were present in the White River watershed to the south and the Pentwater River watershed to the north (Vincent 1962). Since Stony Creek had the appropriate stream temperature and habitat, it makes sense that Arctic Grayling would have been present. In other Michigan streams, overharvest, habitat degradation, and competition with other species all played roles in the eventual extirpation of Arctic Grayling. By 1900 or shortly thereafter, Arctic Grayling were extirpated from all streams in the lower peninsula of Michigan (Vincent 1962).

The first recorded fish stocking on Stony Creek occurred in 1889 when Brook Trout were stocked (Table 1). Brook Trout were stocked regularly until 1910, and then in many years between 1933 and 1960. Bluegill were stocked once in 1937, and Largemouth Bass once in 1940. Brown Trout were stocked in 1974 and 1976, and no stocking has occurred on Stony Creek since then.

Although there are a number of dams on tributaries of Stony Creek, Marshville Dam is the only dam on the mainstem. It was constructed in 1863 as a grist mill. It failed in an 1883 flood. It was then re-built in 1927 to create a fishing pond. The pond was apparently very popular with Brook Trout anglers, with some large fish caught. The dam failed again in 1968, reportedly due to vandalism by anglers who wanted salmon and/or steelhead to be able to pass upstream (John Wyns, personal communication). The dam has remained in a partially drawn-down state since then. The dam is owned by Oceana County, and lies in the Marshville Dam County Park, which was established in 1948.

David P. Borgeson was a longtime Fisheries Biologist (among other various positions) for MDNR Fisheries Division, and Stony Creek was a favorite trout stream of his. In a 1968 response to an angler requesting that Stony Creek be stocked, Mr. Borgeson explained that the stream did not need to be stocked, and that natural reproduction was supporting robust trout populations (Michigan Department of Natural Resources (MDNR) files, Cadillac office). In a 1989 correspondence with an angler, he repeated these assertions, but also stated his belief that Burke and Dorrance Creeks were being degraded by sand being deposited into the streams from poor road/stream crossings.

In several 1986 file entries (MDNR files, Cadillac office), Mr. Borgeson provided fishing reports and his observations on the stream from over the previous 35 years or so. He reported that he first began fishing the stream in 1951, and that at that time there were only Brook Trout upstream of the Marshville Dam. After the dam failed in 1968, he began to catch Rainbow and Brown Trout in upstream reaches. In a mid-August 1986 fishing report, he caught 18 Rainbow Trout from 8.5 to 12 inches, four Brown Trout from 10 to 14 inches, and 2 Brook Trout from 9 to 14 inches. He observed that Stony Creek had become much more choked with tag alder than it had been in the 1950s, and that an active alder removal program would benefit the trout populations and make it easier for anglers to fish the stream. He also mentioned that the streambed was primarily sand, and that it had been that way since the 1950s when he first started fishing the stream. He also recommended the State purchase riparian land along Stony Creek so the stream would have better access for the public.

In another report from the summer of 1986, Mr. Borgeson reported fishing the reach of Stony Creek near the mouth of Cargill Creek. In that area he caught one 11-inch Brown Trout and 15 Brook Trout from 8.5 to 13 inches. He reported that Cargill Creek was still "ice cold" and looked good, but he only caught a few Brook Trout from it. He also fished Piper Creek and caught one 10-inch Brook Trout, one 10-inch Brown Trout, and several Rainbow Trout from 7 to 10 inches. He reported that Piper Creek had only held Brook Trout previously, but that Brown Trout and Rainbow Trout had obviously now colonized the stream.

Historical Fisheries, Habitat, and Temperature Surveys

The fish populations of Stony Creek have rarely been surveyed. One-pass electrofishing surveys were conducted by the Michigan Department of Conservation (MDOC; the precursor to the MDNR of today), in various locations in 1966 and 1967 (Table 2). Only one site was sampled in 1966- below Marshville Dam. Species caught included Brook Trout, Yellow Perch, White Sucker, Common Shiner, and Brook Stickleback. Field notes indicate that electrofishing efficiency was poor, and that the site supposedly receives a run of migratory Brown Trout. Two sites were surveyed in 1967- Shelby Road and below Marshville Dam again. At the Shelby Road station, five Brook Trout were caught from 11.8 to 15.7 inches, with Sculpin being the only other species caught. At the Marshville Dam site, the researchers caught both Brown and Brook Trout, in addition to Pumpkinseed Sunfish, Sculpin, and Brook Sticklebacks. Field notes from the Marshville site indicate that the gear used (likely a backpack electrofishing unit) was too small for the stream size.

The next fisheries survey of Stony Creek was conducted by MDNR fisheries personnel in July of 1999 (O'Neal 1999a). Two sites were surveyed with backpack electrofishing units- Marshville Dam (upstream), and Shelby Road. At Marshville Dam, the catch consisted of Brook Trout from 5 to 10 inches, Brown Trout from 6 to 10 inches, and Rainbow Trout from 5 to 8 inches. Other species included Sculpin and Pumpkinseed Sunfish. At Shelby Road, the catch consisted of Brook Trout from 6 to 10 inches, Brown Trout from 7 to 10 inches, and Rainbow Trout from 4 to 10 inches. Other species caught included Sculpin and Pumpkinseed Sunfish. The conclusion from O'Neal (1999) reads as follows: "Stony Creek has been known for its good trout fisheries for many years. This survey verifies it is a high quality coldwater stream with excellent trout populations".

The only other fisheries survey of Stony Creek was conducted by the Michigan Department of Environmental Quality (MDEQ) in August of 2002 (Walker 2003). The survey was conducted with a backpack electrofishing unit at Shelby Road, and the catch consisted of Rainbow Trout, Brown Trout,

Brook Trout, Mottled Sculpin, and Pumpkinseed Sunfish. The researchers also conducted macroinvertebrate and habitat quality sampling of Stony Creek at Shelby Road, and also conducted a habitat quality survey upstream of the Marshville Dam. The macroinvertebrate community of Stony Creek at Shelby Road rated as "Acceptable", while the habitat quality rated as "Good". The habitat quality at the Marshville Dam site also rated as "Good". Discharge at the Shelby Road site was measured at 43.2 cfs, while at Marshville Dam it was measured at 54.1 cfs.

None of the Stony Creek tributaries have been surveyed recently. Bender Creek was last surveyed in 1966 by MDOC personnel with Brook Trout and Sculpins present. Cargill Creek was also last surveyed in 1966, with Brook Trout and Sculpins being the only fish caught. Piper Creek was last surveyed in 1993 by MDNR, with Brook Trout and Blacknose Dace present. However, a return visit in 1999 found the stream de-watered. The report attributed the condition to several dams on a nearby golf course (O'Neal 1999b). Burke Creek was also surveyed by MDNR in 1999. No trout were caught, only Blacknose Dace and Sculpin. Mason Creek was also last surveyed by MDNR in 1999. Brook Trout, Brown Trout, Rainbow Trout, and Sculpins were caught. Dorrance Creek was last surveyed in 1999 by MDNR, with Brown Trout, Blacknose Dace, and Creek Chubs caught.

The habitat quality and macroinvertebrate communities of Stony Creek tributaries have been surveyed multiple times in recent years by MDEQ (Michigan Department of Environmental Quality; now known as the Michigan Department of Environment, Great Lakes and Energy (MDEGLE)). Burke Creek was surveyed in 2002 (Walker 2003), with the macroinvertebrate community rating as "Acceptable", and the habitat quality rating as "Good". Mason Creek was also surveyed by MDEQ for fish in 1997 (Walker 2000). The site was further upstream than the 1999 MDNR survey, and only Sculpins were caught. Water quality and invertebrate data were also collected by the MDEQ crew, with Mason Creek rating as "Excellent" for invertebrates, and "Fair" for habitat quality. Dorrance Creek was also surveyed for habitat quality and macroinvertebrates in 2002, 2010 (two stations) and 2015 by MDEQ personnel (Walker 2003; Lipsey 2012; Wilmes-Knoll 2019). In 2002, the Dorrance Creek habitat rated as "Marginal", while in 2010 and 2015, the Dorrance Creek habitat rated as "Good" for all stations. In all MDEQ macroinvertebrate surveys of Dorrance Creek, the community rating was "Acceptable" for all years and all stations.

A temperature study of Stony Creek was conducted during the summer of 2019 at the Marshville Dam site. A continuous-recording thermometer that took temperature readings every hour was installed for the months of June, July, and August (Table 3). The July average temperature was 56.7°F, while the July maximum temperature (and the warmest temperature observed in the study) was 62.3°F.

Current Status

The most recent MDNR fisheries surveys of Stony Creek were conducted in the summer of 2020. A mark-recapture population estimate survey was conducted at the Marshville Dam site, while a single-pass survey was conducted at Shelby Road. Both were discretionary surveys. The Marshville Dam survey was loosely conducted according to the standards of the Status and Trends program (Wills et al. 2011). The Marshville Dam survey was conducted on July 27 and 28, 2020, with a tow-barge electrofishing unit with three probes. The survey reach was 800 feet in length, starting at the dam remnant structure and proceeding upstream. Salmonids were collected for the entire length of the station, while non-game species were only collected for the first 400 feet of the station. In the Marshville Dam survey reach, Brook Trout from 3 to 10 inches, Brown Trout from 6 to 20 inches, and

Rainbow Trout from 1 to 12 inches were caught. One 4-inch Coho Salmon was also caught. Mark-recapture population estimates were 64 Brown Trout, 222 Rainbow Trout, 73 Brook Trout, and 2 Coho Salmon per acre (Table 4). Biomass estimates were 43.1 lbs/acre for Brown Trout, 25.1 lbs/acre for Rainbow Trout, 13.3 lbs/acre for Brook Trout, and .04 lbs/acre for Coho Salmon (Table 4). Other species caught in the survey included Central Mudminnow, Mottled Sculpin, and one Goldfish. A moderate gill lice infestation was noted on some of the Brook Trout.

Age and growth were evaluated for salmonids from the 2020 Marshville Dam survey (Table 5). Brook Trout were from age-0 to -2, Brown Trout were from age-1 to -5, Rainbow Trout were from age-0 to -2, and the lone Coho Salmon was age-0. The Brook Trout, Brown Trout, and Rainbow Trout from the 2020 survey were all growing substantially faster than the Michigan state average.

Habitat assessment data for the Marshville Dam site was collected according to Wills et al. 2011 (Table 6). The stream averaged 25.1 feet wide, 2.2 feet deep, and had a discharge of 48.2 cfs. Sand was by far the primary substrate, and the morphology was 100% run.

The Shelby Road survey station was 700 feet in length and was surveyed with one backpack electrofishing unit. At the Shelby Road site, salmonids caught included 11 Brook Trout from 3 to 11 inches, 14 Brown Trout from 4 to 15 inches, 42 Rainbow Trout from 2 to 9 inches, and one 3-inch Coho Salmon (Table 7). The only other species encountered was Mottled Sculpin. Cursory habitat evaluations noted that the stream averaged 17 feet wide and 1 foot deep, with a maximum depth of 3.5 feet. Bottom types were 90% sand, 5% boulder, 3% cobble, and 2% gravel. All hard substrate was associated with the Shelby Road bridge. Stream morphology was 90% run, 5% riffle, and 5% pool. According to the field notes, the crew felt slightly "undergunned" with just one backpack shocker and thought that another backpack unit might have increased the catch to some degree. Despite this, the crew felt that the catch was representative, mostly due to the length of stream surveyed.

Analysis and Discussion

The 2020 fisheries surveys of Stony Creek showed robust populations of Brook, Brown, and Rainbow Trout, along with a few Coho Salmon. The Brook and Brown Trout are likely resident populations with some potential of migratory contribution. Occasional angler reports of Brown Trout being caught from Stony Lake have been recorded. Most of the Rainbow Trout in Stony Creek are likely Steelhead parr, although several larger individuals caught may indicate some level of a resident Rainbow Trout population in addition to the migratory Steelhead population. Stony Creek is not stocked with Rainbow Trout or Steelhead, yet anglers report consistent runs of adult Steelhead from Lake Michigan each year. Coho Salmon are also not stocked in Stony Creek yet were present at both survey stations in 2020. Although Chinook Salmon were not caught in the 2020 survey, angler reports indicate their presence during fall spawning runs. Chinook Salmon smolts typically leave the stream in May and June, so that may explain their absence in the 2020 surveys.

Management Direction

Based on the results of the 2019 MDNR temperature study and the 2020 fisheries surveys, Stony Creek appears to be relatively intact and healthy. It hosts self-sustaining populations of Brook Trout, Brown Trout, Rainbow Trout (Steelhead), and Coho Salmon. Stony Creek has remained a high-quality cold-water stream in part due to a lack of intensive human development along the mainstem and its

tributaries. Much of the watershed is in a forested, undeveloped state. Agriculture and human development may affect some of the tributaries, but if so, that degradation does not appear to have affected the mainstem to any great degree.

Stony Creek has not been stocked in many years and that should remain the case. Although the fish populations of Stony Creek have been recently studied to some degree by MDNR Fisheries Division, many questions remain. Future studies should include determining the number of Chinook Salmon, Coho Salmon, and Steelhead smolts being produced in Stony Creek. Enumerating returning adult salmon and Steelhead would also provide valuable insight for fisheries managers. The tributaries of Stony Creek have not had fisheries surveys conducted on them in several decades. They should be surveyed as soon as possible, particularly Piper Creek, which has a history of degradation.

The Marshville Dam is the only dam on the mainstem of Stony Creek. It has been in a partially drawn-down state since 1968. It is currently in a crumbling state, with chunks of concrete having fallen into the river, and re-rod visible. While the dam does not block the passage of salmonids or Sea Lamprey, it likely blocks passage of native species like White Sucker and Mottled Sculpin. We strongly recommend that the Marshville Dam be removed in its entirety and the stream restored to its natural state. In addition, the Marshville Dam Road crossing, just a short distance below the Marshville Dam, should also be replaced. The crossing currently consists of three undersized culverts that impound water and likely also block the passage of native fish species. Within the last year, a significant number of partners have mobilized an effort to remove the Marshville Dam and replace the Marshville Dam Road crossing. These partners include the Oceana County Parks and Recreation Commission, the Oceana County Road Commission, Oceana County Drain Commission, Conservation Resource Alliance, the Michigan Department of Environment, Great Lakes, and Energy (MDEGLE), West Michigan Shoreline Regional Development Commission, Trout Unlimited, the Little River Band of Ottawa Indians, the Grand Traverse Band of Ottawa and Chippewa Indians, MDNR, and the US Fish and Wildlife Service. It would be highly beneficial if these critical projects can be completed within the next few years.

Another major issue on Stony Creek is the lack of public access. Except for road/stream crossings, the only public land adjacent to Stony Creek is at the Marshville Dam County Park. This makes it difficult for anglers to access much of the length of Stony Creek. Careful watch should be kept for opportunities for the acquisition of public land along Stony Creek to provide better access for anglers. Potential partners in land acquisition could include Oceana County and the Land Conservancy of West Michigan.

While the groundwater-fed nature of Stony Creek will help to maintain cold stream temperatures, the habitat of Stony Creek could be improved and would likely provide more, and larger trout for anglers. Overgrowth of tag alder is an issue in certain reaches, as the tag alders widen the stream and reduce average depth, making it less suitable for salmonids and less attractive to anglers. This condition can be addressed by crews working with hand tools to strategically remove tag alder overgrowth and re-position woody debris in a fashion that will narrow and deepen the stream, while also providing overhead cover for salmonids. Also, habitat improvement projects that add larger woody cover to the stream, and that narrow and deepen the stream, would also provide major benefits for anglers that prefer larger Brown and Brook Trout.

Due to high quality cold-water and relatively undegraded nature of Stony Creek, the primary goal for the stream should be protection. Human development within the watershed and near the stream corridor could negatively affect the stream, as could improper agricultural practices. Stony Creek advocates should work with MDEGLE and MDNR to monitor activities along the stream, including development, agriculture, and water withdrawal.

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Table 1. Fish stocked in Stony Creek, Oceana County, Michigan, 1889-2021.

Year	Species	Number	Life stage	Strain
1889	Brook Trout	12,000		
1890	Brook Trout	12,000		
1893	Brook Trout	6,000		
1894	Brook Trout	6,000		
1896	Brook Trout	9,000		
1897	Brook Trout	6,000		
1898	Brook Trout	7,000		
1901	Brook Trout	6,000		
1902	Brook Trout	12,000		
1903	Brook Trout	6,000		
1905	Brook Trout	6,000	fry	
1906	Brook Trout	6,000		
1907	Brook Trout	9,000		
1909	Brook Trout	6,000	fry	
1910	Brook Trout	5,000		
1933	Brook Trout	3,000	6 mo.	
1934	Brook Trout	14,000	6 mo.	
1935	Brook Trout	6,000	7 mo.	
1936	Brook Trout	2,000	7 mo.	
1937	Bluegill	14,400	6 mo.	
1938	Brook Trout	12,000	7 mo.	
1939	Brook Trout	9,000	7 mo.	
1940	Brook Trout	3,000	7 mo.	
	Largemouth Bass	300	3 mo.	
1941	Brook Trout	5,000	7 mo.	
1951	Brook Trout	150	yearlings	
1952	Brook Trout	200	yearlings	
1953	Brook Trout	200	yearlings	
1954	Brook Trout	200	yearlings	
1955	Brook Trout	200	legal	
1956	Brook Trout	100	legal	
	Rainbow Trout	100	legal	
1957	Brook Trout	200	legal	
1958	Brook Trout	200	legal	
1959	Brook Trout	200	legal	
1960	Brook Trout	100	legal	
1974	Brown Trout	20,000	yearlings	
1976	Brown Trout	12,000	yearlings	
		8,000	green eggs	

Table 2. Presence/absence of fish species in historical fisheries surveys at various locations on Stony Creek.

Species	1966	1967	1999	2002	2020
Brook Stickleback	x	x			
Brook Trout	x	x	x	x	x
Brown Trout	x		x	x	x
Central Mudminnow					x
Coho Salmon					x
Common Shiner		x			
Goldfish					x
Mottled Sculpin				x	x
Pumpkinseed Sunfish	x		x	x	
Rainbow Trout			x	x	x
Sculpin Spp.			x		
Slimy Sculpin	x				
White Sucker		x			
Yellow Perch		x			

Table 3. Stony Creek temperature data (degrees Fahrenheit) from the Marshville Dam site, summer 2019.

	2019
June Minimum	47.5
June Average	54.1
June Maximum	61.1
July Minimum	51.5
July Average	56.7
July Maximum	62.3
August Minimum	50.2
August Average	55.4
August Maximum	61.4

Table 4. MDNR salmonid population estimates for Stony Creek at the Marshville Dam survey station, July 27 and 28, 2020.

	BNT		RBT		BKT		COS	
Year	#/acre	lbs/acre	#/acre	lbs/acre	#/acre	lbs/acre	#/acre	lbs/acre
2020	64	43.1	222	25.1	73	13.3	2	0.04

Station length = 800 feet
Station average width = 25.1 feet
Station area =.46 acres

Table 5. Average total weighted length (inches) at age, and growth relative to the state average, for salmonids sampled from Stony Creek at the Marshville Dam survey station by electrofishing, July 27-28, 2020. Number of fish aged is given in parenthesis.

	Age						Mean Growth
Species	0	I	II	III	IV	V	Index
Brook Trout	3.5 (1)	7.0 (20)	9.9 (8)				+1.8
Brown Trout		7.5 (11)	9.8 (7)	14.4 (4)	16.8 (3)	20.9 (1)	+1.4
Rainbow Trout	1.6 (3)	6.8 (38)	11.6 (2)				+1.6
Coho Salmon	4.7 (1)						--

Table 6. Habitat evaluation from Stony Creek at the Marshville Dam survey station.

	2020
% Riffle	0.0
% Run	100
% Pool	0.0
Average width (ft)	25.1
Average depth (ft)	2.19
Max depth (ft)	3.6
Discharge (cfs)	48.2
Woody cover (sq ft)	583
Linear wood (ft)	822
Substrate	
clay	4.6%
detritus/silt	10.8%
sand	78.5%
gravel	0.0%
small cobble	0.0%
large cobble	1.5%
boulder	0.0%
wood	1.5%
island	3.1%

Table 7. Species and number of fish caught per inch class in the 9/16/20 MDNR electrofishing survey of Stony Creek at the Shelby Road survey station. The station was 700 feet in length.

inch class	Brook Trout	Brown Trout	Rainbow Trout	Coho Salmon	Mottled Sculpin
1					7
2			2		35
3	1		4	3	22
4		1	6		1
5			12		
6	2	1	12		
7	3	2	2		
8	2	2	2		
9	1	1	2		
10	1	2			
11	1	3			
12					
13		1			
14					
15		1			
Total:	11	14	42	3	65

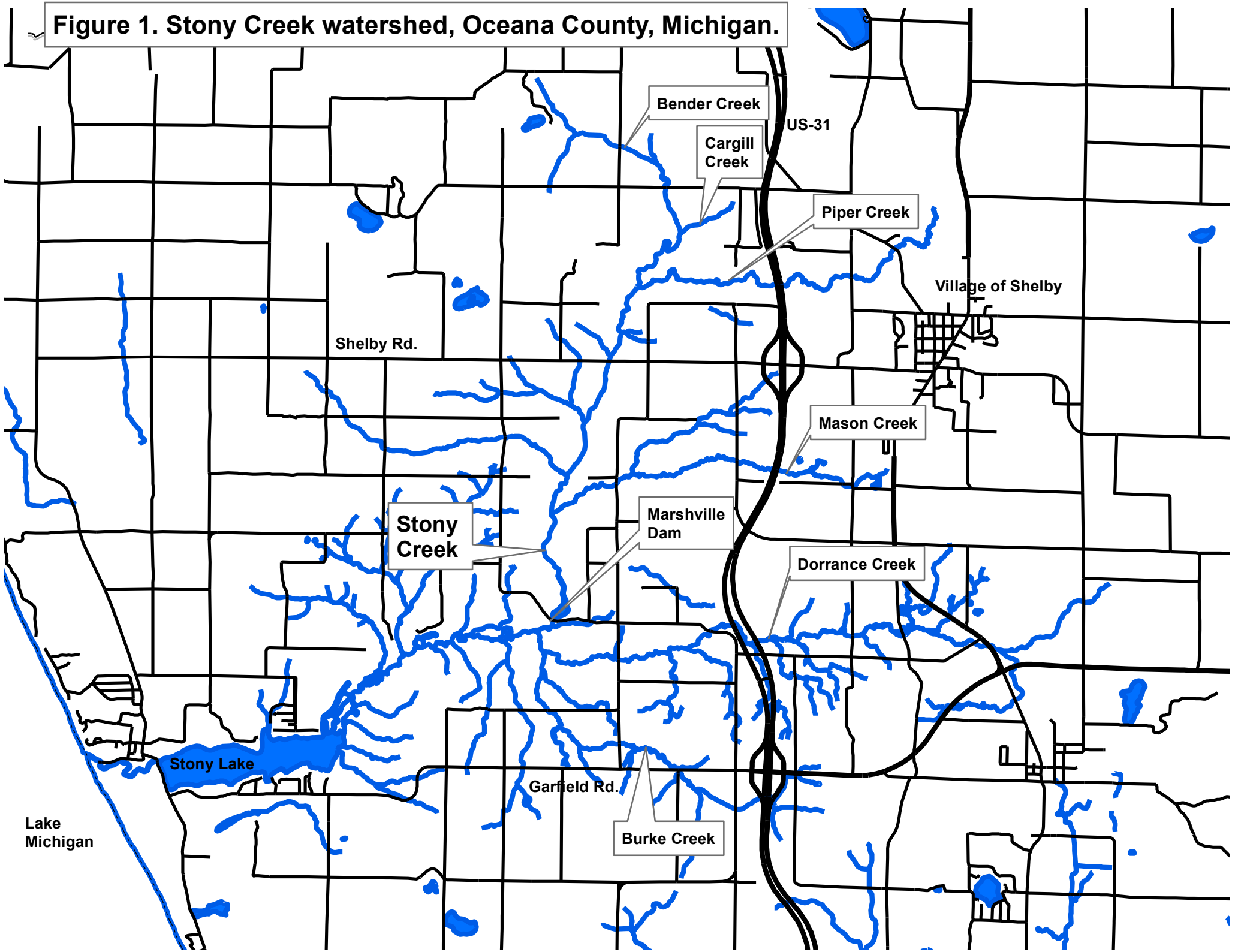
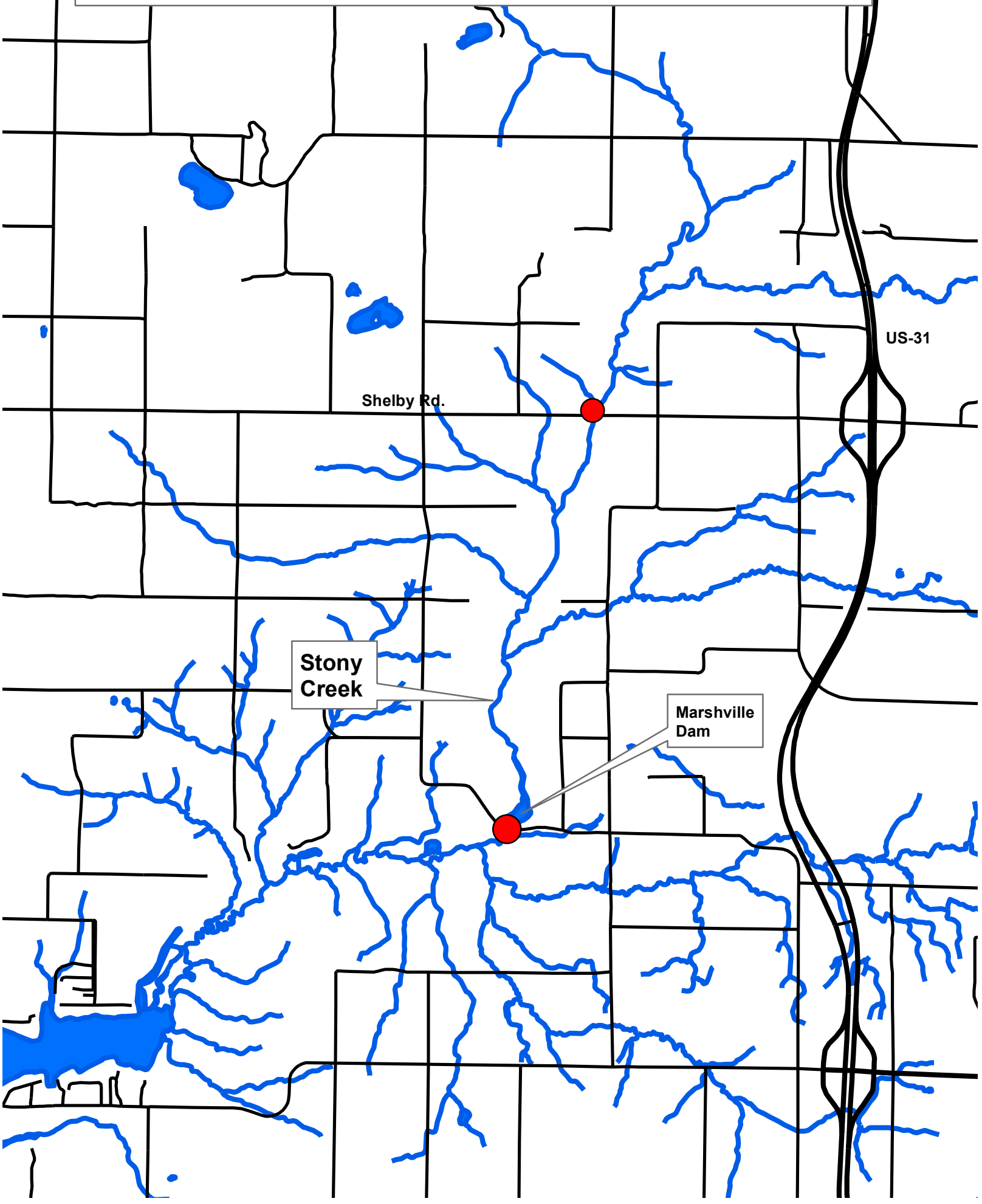


Figure 1. Stony Creek watershed, Oceana County, Michigan.
Bender Creek
US-31
Cargill Creek
Piper Creek
Village of Shelby
Shelby Rd.
Mason Creek
Stony Creek
Marshville Dam
Dorrance Creek
Stony Lake
Garfield Rd.
Lake Michigan
Burke Creek

Figure 2. 2020 MDNR survey locations on Stony Creek, Oceana County, Michigan.



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