Monitor Mills Dam Modification
State Environmental Quality Review Act
Long Environmental Assessment Form
Part 1D. Informational Details
Final Report, July, 2007

Monitor Mills dam, photograph taken on 30 June 2006

prepared by

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1.0 *Introduction*

This is a supplemental report to the Long Environmental Assessment Form of the New York State Environmental Quality Review Act (SEQRA) for the proposed modification of the Monitor Mills Dam. The Nature Conservancy, Tug Hill Commission, and New York State Department of Environmental Conservation (Region 6), with permission from the dam owner, propose to modify the existing dam at Monitor Mills Road to allow for fish passage through the spillway. This supplemental report presents information on historical attributes, land use and soil composition, and fish species in the project area, and evaluates potential impacts that might arise from modification of the dam.

1.1 *Location of the Monitor Mills Dam (State ID # 080-0043)*

The dam is located on South Sandy Creek (43º 44' 43" N Lat.; 76º 7' 38" W Long.) a tributary of eastern Lake Ontario, approximately 1.0 mile upstream of Ellisburg, Jefferson County, New York.

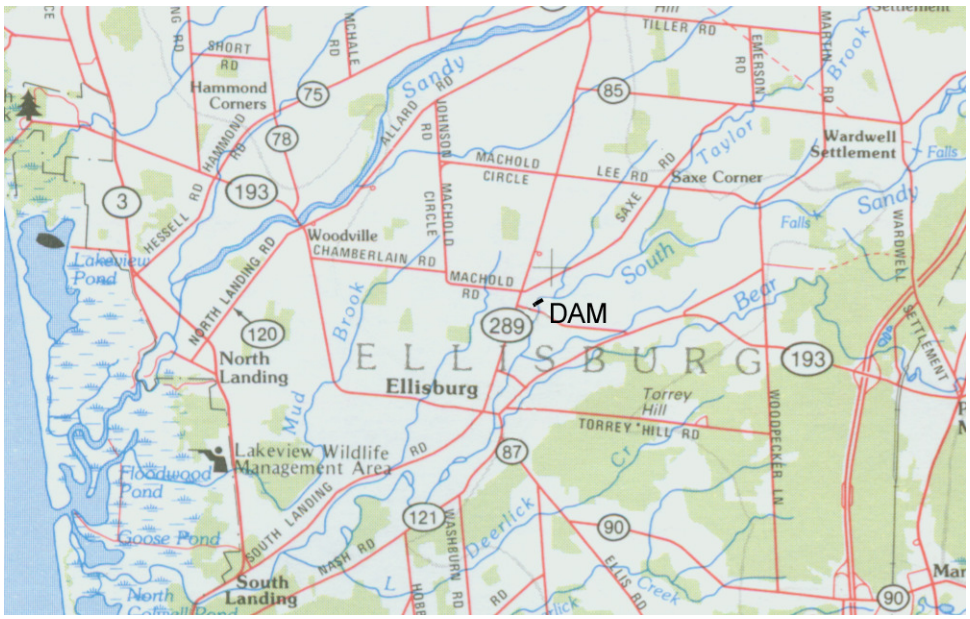

Figure 1. Location map of Monitor Mills Dam. Two falls are present upstream of the dam, one near Saxe Corner and the other near Wardwell Settlement.

1.2 *History, physical dimensions, and condition of the dam*

History. Several dams have been built across South Sandy Creek, most have been located downstream of the village and were removed by freshets (1797 to 1799). These dams were accompanied by different types of mills, many of which were also destroyed by freshets or fire. New mills were built throughout the 1800s including a stone grist mill in 1825-1826 upstream of the village; a dam that may have been associated with the grist mill was built around 1854 (Emerson 1898). The present dam (Figure 2) was built in 1905 according to a dam safety report dated 1917 (*see Attachment 1*). Sentimental and historical value is placed on the dam by the present landowner.

Characteristics and physical dimensions. The dam is a run-of-river gravity dam constructed of cut stone laid up with little or no mortar, capped by concrete, and extends 5– 9 feet above the bedrock of the creek. The main structure extends 211 feet from the east bank of the creek in a SE direction where it abuts a second wall at a 65 degree angle, forming a point. This second wall contains the main spillway and extends out about 30 feet from the SW bank. The original dam configuration had the present point connected to a masonry flume wall that led southward to the mill, about 220 feet downstream (*see Attachment 1*).

The present dam retains most of the original structure with the exception of the masonry wall leading to the mill. The junction of the main dam and the wall from the SW bank (the present point) has been repaired with concrete. There are two auxiliary spillways, one near the east bank, now blocked, and the other near the point. The dam was considered to be in satisfactory condition according to inspections in 1917 and 1975. There were numerous leaks (September 2006) through the laid stone section of the dam and some of the stone had collapsed at the east end. The dam was considered to be a low to medium hazard in 1975.

The reservoir created by the dam is less than 2 acres in surface area and has filled in with cobble and gravel to approximately 80% of the length of the dam and upward to within a few inches of the dam crest. This deposit extends from the north bank southward toward the spillways. Water overtops the dam at flows greater than 100 cubic feet per second (cfs) and flows only through the spillways at flows less than 50 cfs (estimated from the daily discharge at the USGS gage at Sandy Creek that corresponded to observed conditions in South Sandy Creek in 2006).

1.3 *Alternatives assessment*

The dam, in its current condition, poses a low to medium hazard in the case of a breach or collapse, thus one alternative is to not modify the spillways and leave the dam as it is. A second alternative would be to remove the brush and other material that is obstructing the spillways but not alter the spillways for fish passage. This alternative is dependent upon the condition of the spillways, which is unknown at present.

1.4 *Design of control structure modifications*

The extent and type of modifications made to the spillways will be determined after completion of the Environmental Assessment. Fish passage designs should incorporate an appropriate barrier to minimize, or prevent, upstream migration of sea lamprey. The nature of the modifications will need to be determined prior to submitting a permit request to NYSDEC under 6 NYCCR Part 608.

Figure 2. Monitor Mills Dam viewed from downstream on 7 September 2006. Discharge in Sandy Creek was about 30 cfs on this date. The mill was located about 220 feet downstream from the dam.

2.0 *Regional setting, history of Monitor Mills Dam, and land characteristics.*

2.1 *Regional setting*. South Sandy Creek flows southwest through Lorraine Gulf, a gorge of the Lake Ontario lowlands, into North Colwell and Goose ponds prior to entering eastern Lake Ontario. Most streams in this drainage basin (Salmon-Sandy, USGS hydrologic unit 04140102) flow through gorges, locally called 'gulfs', and have substrates of bedrock, cobble, and gravel. South Sandy Creek is on the border of two distinct Ordovician sedimentary deposits: the limestone, chert, and shale of the middle Ordovician period (streams to the north), and the overlying siltstone and shale of the late Ordovician (streams to the south). One distinctive feature of South Sandy Creek is the numerous potholes found in the bedrock of the creek that were formed by fast-flowing subglacial streams (Figure 3; Embleton and King 1971; Rogers et al. 2000).

Figure 3. Geologic pothole formed by a subglacial stream in bedrock of South Sandy Creek. This pothole has a diameter of approximately 3 feet. Numerous potholes are present downstream of the Monitor Mill Road bridge.

2.2 *Land use.* Agricultural land represents over 79% of the land cover within the surveyed area (defined as the area extending 1500 ft upstream and downstream of the dam out to 500 ft on either side of South Sandy Creek). The project site is in protected agricultural lands (Jefferson County Agricultural District #3). Forest, water, and buildings make up the remainder of land cover (Table 1). Forest cover is present along both sides of the creek. The percentages were determined from color-infrared aerial photography taken in 2003 (www1.nysgis.state.ny.us).

Table 1. Land cover in percent and acreage by category in the surveyed area.

Category	Percent cover	Cover in acres
Agriculture	79.2	58.06
Forest	11.8	8.64
Water	5.4	3.98
Buildings	3.5	2.56

2.3 *Soil types*. Thirteen soil types are present in the surveyed area dominated by collamer silt loam. Only six of the 13 types occur next to the creek bank; the most prominent type is the severely eroded Hudson and Vergennes soils (Figure 4). Most of these soils are silt and sand with little clay, particularly those that border the creek bank (BfF, FaB, HyE3, and Te). The majority of these soils are moderately well-drained.

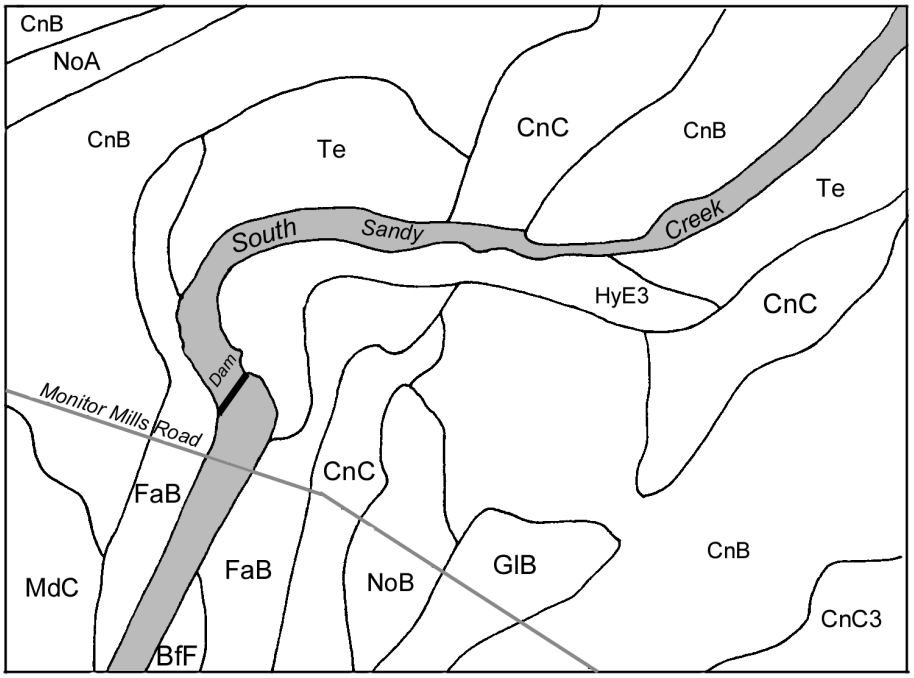

Figure 4. Soil types within the surveyed area. There are 94 acres represented in the surveyed area. These data are derived from the Natural Resources Conservation Service web soil survey (http://websoilsurvey.nrcs.usda.gov).

Table 2. Soil types, total acres, and percent of total acres of the surveyed area in Figure 4. Soil descriptions and acreage were derived from Natural Resources Conservation Service web soil survey data (http://websoilsurvey.nrcs.usda.gov).

Map unit symbol	Map unit name	Total acres	Percent of total	Map unit symbol	Map unit name	Total acres	Percent of total
BfF	Benson channery silt loam, rocky, 25-30% slope	0.4	0.5	MdC	Madrid sandy loam, 8-15% slope	2.2	2.4
CnB	Collamer silt loam, 3-8% slope	40.7	43.4	MdD	Madrid sandy loam, 15-25% slope	0.1	0.1
CnC	Collamer silt loam, 8-15% slope	12.2	13.0	NoA	Niagara silt loam, 0-3% slope	1.5	1.5
CnC3	Collamer silt loam, 8-15% slope, severely eroded	1.9	2.0	NoB	Niagara silt loam, 3-8% slope	3.0	3.2
FaB	Farmington loam, 0-8% slope	8.5	9.1	Te	Teel silt loam	9.0	9.5
GlB	Galway silt loam, 3-8% slope	3.6	3.8	W	water	5.2	5.5
HyE3	Hudson and Vergennes soils, 15-35% slope, severely eroded	4.6	4.9	We	Wayland silt loam	1.1	1.2

2.4 *Wetlands*. The wetland designations for the area consist of permanently flooded substrate composed of cobble, gravel, and bedrock downstream of the dam to beyond Ellisburg and upstream of the dam to the first falls at Saxe Corner. Seasonally flooded unconsolidated depositional material has formed a shoreline behind the dam. Seasonally flooded scrub-shrub and broad-leaved deciduous plants are present approximately 2.2 miles downstream of the dam (Figure 5). Other wetland areas (not shown) occur in the upper reaches of Taylor Brook and Bear Creek, upstream and downstream of the dam, respectively.

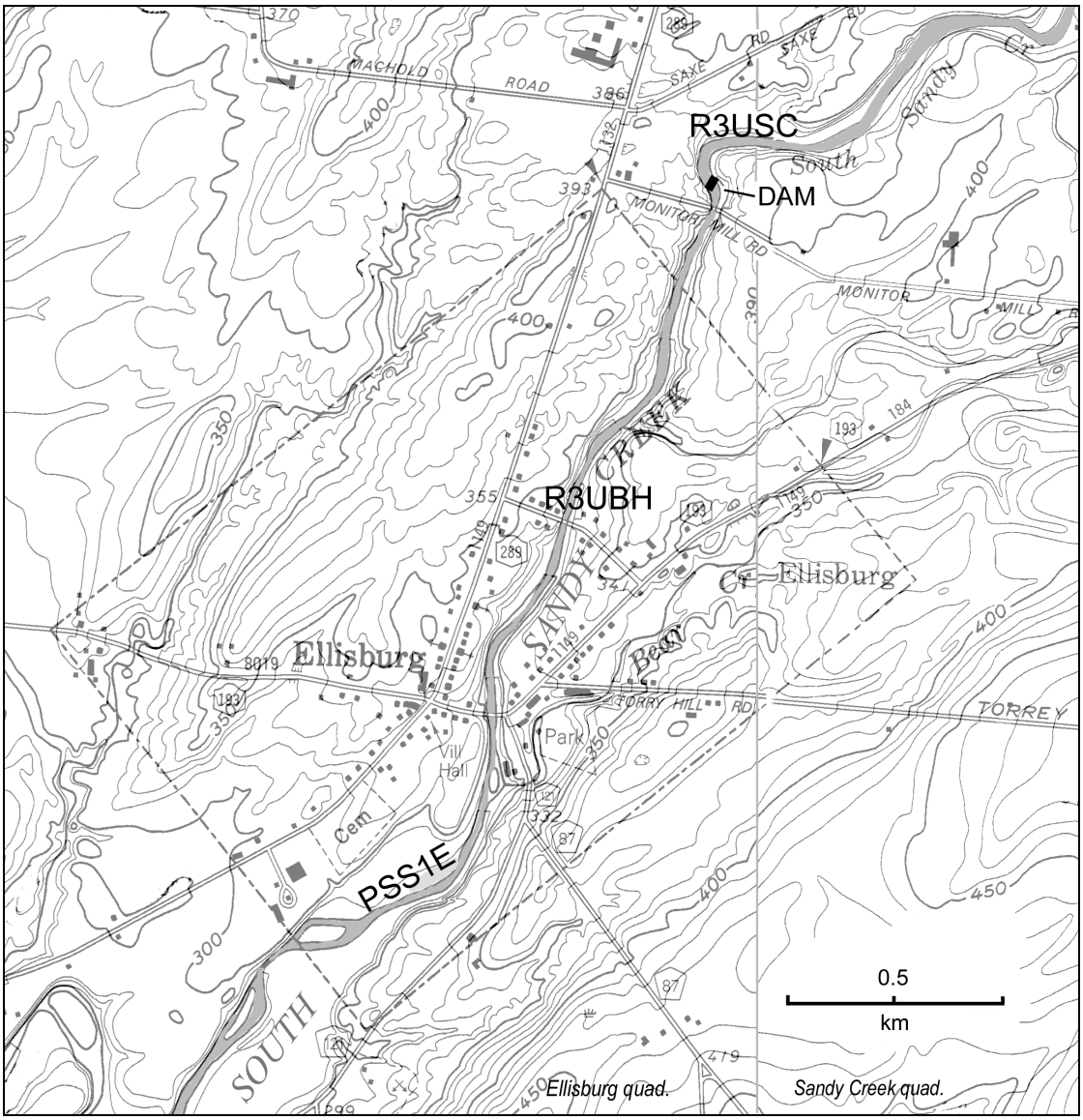

Figure 5. Topographic contours of the Monitor Mills Dam area and wetland designations. The dashed line represents the Ellisburg village boundary. Attribute classification definitions derived from Cowardin et al.1979. Base map from NYSDOT topography with wetlands derived from USFWS National Wetland Inventory (www.fws.gov/nwi).

The wetland designations shown in Figure 5 are defined as follows:

R3USC: R3US_____C_____

[R] Riverine, [3] Upper Perennial, [US] Unconsolidated Shore, [C] Seasonally Flooded
[R] Riverine - The Riverine System includes all wetlands and deepwater habitats contained in natural or artificial channels periodically or continuously containing flowing water or which forms a connecting link between the two bodies of standing water. Upland islands or Palustrine wetlands may occur in the channel, but they are not part of the Riverine System.

(3) Upper Perennial - This Subsystem is characterized by a high gradient and fast water velocity. There is no tidal influence, and some water flows throughout the year. This substrate consists of

rock, cobbles, or gravel with occasional patches of sand. There is very little floodplain development. [US] Unconsolidated Shore - Includes all wetland habitats having three characteristics:

(1) unconsolidated substrates with less than 75% areal cover of stones, boulders, or bedrock;
(2) less than 30% areal cover of vegetation other than pioneering plants; and
(3) any of the following water regimes: irregularly exposed, regularly flooded, irregularly flooded, seasonally flooded, temporarily flooded, intermittently flooded, saturated, seasonal-tidal, temporary-tidal, or artificially flooded. Intermittent or intertidal channels of the Riverine System or intertidal channels of the Estuarine System are classified as Streambed. Landforms such as beaches, bars, and flats are included in the Unconsolidated Shore class.

[C] Seasonally Flooded - Surface water is present for extended periods especially early in the growing season, but is absent by the end of the growing season in most years. The water table after flooding ceases is variable, extending from saturated to the surface to a water table well below the ground surface.

R3UBH: R3UB_____H_____

[R] Riverine, [3] Upper Perennial, [UB] Unconsolidated Bottom, [H] Permanently Flooded

[R] Riverine - The Riverine System includes all wetlands and deepwater habitats contained in natural or artificial channels periodically or continuously containing flowing water or which forms a connecting link between the two bodies of standing water. Upland islands or Palustrine wetlands may occur in the channel, but they are not part of the Riverine System.
(3) Upper Perennial - This Subsystem is characterized by a high gradient and fast water velocity. There is no tidal influence, and some water flows throughout the year. This substrate consists of rock, cobbles, or gravel with occasional patches of sand. There is very little floodplain development.
[UB] Unconsolidated Bottom - Includes all wetlands and deepwater habitats with at least 25% cover of particles smaller than stones (less than 6-7 cm), and a vegetative cover less than 30%.
[H] Permanently Flooded - Water covers the land surface throughout the year in all years.

PSS1E: P_SS1____E_____

[P] Palustrine, [SS] Scrub-Shrub, [1] Broad-Leaved Deciduous, [E] Seasonally Flooded/Saturated

[P] Palustrine - The Palustrine System includes all nontidal wetlands dominated by trees, shrubs, emergents, mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean derived salts is below 0.5 ppt. Wetlands lacking such vegetation are also included if they exhibit all of the following characteristics:

1. are less than 8 hectares (20 acres);
2. do not have an active wave-formed or bedrock shoreline feature;
3. have at low water a depth less than 2 meters (6.6 feet) in the deepest part of the basin;
4. have a salinity due to ocean-derived salts of less than 0.5 ppt.

[SS] Scrub-Shrub - Includes areas dominated by woody vegetation less than 6 m (20 feet) tall. The species include true shrubs, young trees (saplings), and trees or shrubs that are small or stunted because of environmental conditions.
(1) Broad-leaved Deciduous - No definition given.

[E] Seasonally Flooded/Saturated - Surface water is present for extended periods especially early in the growing season and when surface water is absent, substrate remains saturated near the surface for most of the growing season.

3.0 *Aquatic environment of South Sandy Creek*

3.1 *Water quality/quantity*. South Sandy Creek is listed as class C water which supports fisheries but is not suitable for contact recreation. There are no known pollution impacts within South Sandy Creek (DEC 2004 Section 303-d list) although concern exists with sediment contaminated with PCBs, mirex, and dioxin in the nearshore areas of Lake Ontario. An advisory has been issued for consumption of Lake Ontario fishes. These contaminants may be carried into South Sandy Creek in the tissues of migrating fishes (*see below for discussion*).

There is no gaging station on South Sandy Creek so estimates of water discharge have been made using the gaging station on Sandy Creek (USGS gage 0420750) near Adams: records for estimated daily discharge are poor due to influences from upstream uses so only average monthly discharges are shown. Seasonal and yearly discharge patterns in South Sandy Creek are likely to be similar to those in Sandy Creek. Flow in Sandy Creek indicates a flashy nature over the period of record (1958 to 2005; Figure 6), particularly during spring snowmelt and rain storms. The flashy nature of the discharge

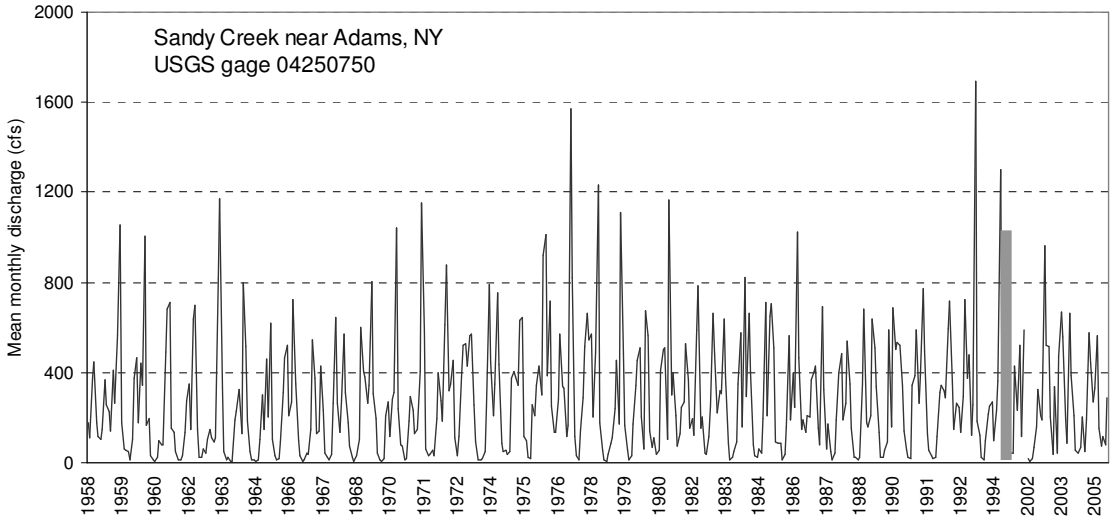

Figure 6. Mean monthly discharge by year in Sandy Creek from 1958 to 2005. The gray area represents April 1995 to June 2002 for which there is no discharge record. The flow pattern for South Sandy Creek is likely to be similar.

can be seen in the statistics derived for Sandy Creek (Table 3).

Table 3. Statistics for discharge (cfs) and corresponding dates for Sandy Creek (1958 to 2005).

	Daily	Monthly
Maximum	6440 (25 February 1985)	1695 (April 1993)
Minimum	2.2 (17 September 1963)	3.96 (September 1960)
Mean	283	286

The mean monthly discharge by month (Figure 7) shows increased discharge during spring and fall months and a lower discharge during summer months. These average flows exceed the minimum flow needed for maintenance of trout and salmon populations (1-5 cfs), although minimum *daily* flow may not meet the minimum flow, especially during droughts.

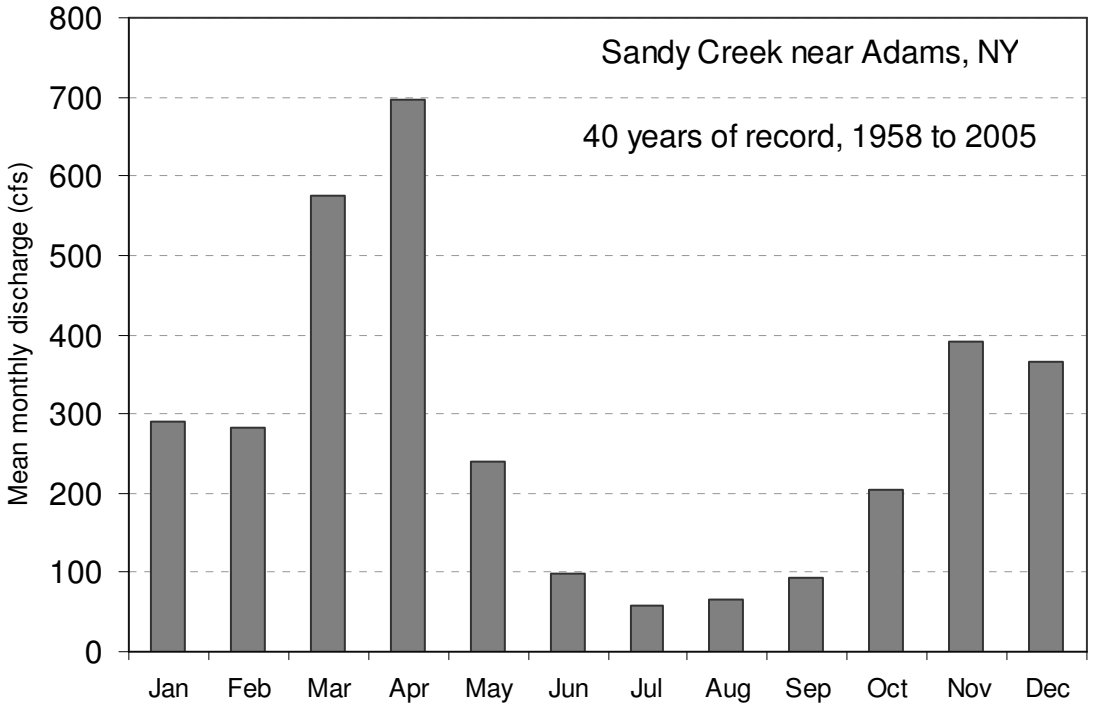

Figure 7. Mean monthly discharge in cfs (all years combined) for the period of record.

3.2 *Fish species*. Historical data is lacking in detail for South Sandy Creek but a 1931 survey of streams in the vicinity resulted in 52 fish species collected (Greeley and Bishop 1932). More recent collections by NYSDEC (1986 to 2005, R. Klindt, NYSDEC, personal communication) have resulted in 43 species including 8 species that were not reported in 1931. Fifteen species that were reported in 1931 were not collected by NYSDEC. Identification of fish species (and resulting names) has changed since 1931 and may account for some of the difference as would changes in stocking programs and collection techniques.

The NYSDEC data base can be used to compare the fish community in South Sandy Creek to that in Sandy Creek (Table 4). There were more fish species collected in South Sandy Creek but the percentage of forage and game fish were similar between both creeks. Sunfish comprised 59% of the game fish collected downstream in Sandy Creek and 72% of game fish collected downstream in South Sandy Creek were sunfish. Game fish in the upstream community of Sandy Creek were primarily sunfish (53%) and trout (23%). The trout species were brook trout (1.8%), brown trout (14%), and rainbow trout

(7.1%). Game fish in the upstream community of South Sandy Creek were primarily brook trout (88%), pumpkinseed sunfish (5%), and rainbow trout (<1%) with the remaining percentage composed of brown bullhead (4.3%), yellow perch (1.4%), and northern pike (<1%). No endangered, threatened, or species of special concern were reported from South Sandy Creek. A list of fish species is given in Attachment 2.

Table 4. Percent forage and game species in the fish community of Sandy and South Sandy creeks.

	Sandy Creek		South Sandy Creek	
	downstream	upstream	downstream	upstream
Number of fish species	28	22	41	25
Forage fish %	42	97	59	94
Game fish %	54	3	41	6
Other %	4	0	0.5	0

South Sandy Creek is an important fishing resource for salmon fishing primarily during September and October for chinook salmon. The estimated catch of chinook salmon in South Sandy Creek represented 10% of the stream-caught chinook from tributaries surveyed (n = 24) in eastern Lake Ontario in 2005, exceeded only by that in the Salmon River where 57% of chinook were caught (Prindle et al. 2005). Angler effort was 5500 angler days in 1997 and 1810 angler days in 2005, part of a declining trend from a high of 22,000 angler days in 1987 (McCullough 1997). The cause for the decline is unknown.

Three salmonid fish species were stocked in South Sandy Creek in 2005: 100,000 chinook salmon stocked near Ellisburg along with 28,750 rainbow trout (steelhead); and 600 brook trout were stocked near Worth (east of Interstate 81) in the Lorraine Gulf area (www.dec.state.ny.us). Spawning habitat for trout and salmon species may be limited to the smaller tributaries since the predominant substrate of South Sandy Creek is bedrock.

Sea lamprey is present in many streams in the eastern basin of Lake Ontario. These streams are shown in Figure 8 with their management status (www.glfc.org). South Sandy Creek is treated with TFM (3 trifluoromethyl-4-nitrophenol) lampricide at 3 to 7 year intervals for adults and larvae. Treatment started in 1972 and the most recent treatment was in May, 2005. A quantitative survey of South Sandy Creek downstream of the dam was made in 2004 and resulted in a population estimate of 1,815 transforming lampreys, and 154,485 larvae. Sea lamprey composed 4% (by number collected) in the NYSDEC data base (1986-2005). Surveys upstream of the dam have not been made since 1992, however, less habitat for sea lamprey larvae is available upstream of the dam and no sea lamprey larvae were collected when upstream surveys were made (F. Neave, pers. comm., Dept. Fisheries and Oceans, Canada). There has been no evidence of downstream migration of sea lampreys from upstream of the dam. South Sandy Creek will be surveyed again in 2007 with a possible treatment in 2008.

Two waterfalls are present upstream of the dam: upstream of Saxe Corner, and upstream of Wardwell Settlement Road. These falls would *not* deter sea lamprey from moving upstream. The first falls are located approximately 0.5 mile upstream from Saxe Corner and Log London Road (Fig. 9). The falls is arranged in a stair-step fashion of 1 to 1.5 foot increments and an overall height of approximately 6 feet. Sea lamprey could navigate upstream over the full length of the falls.

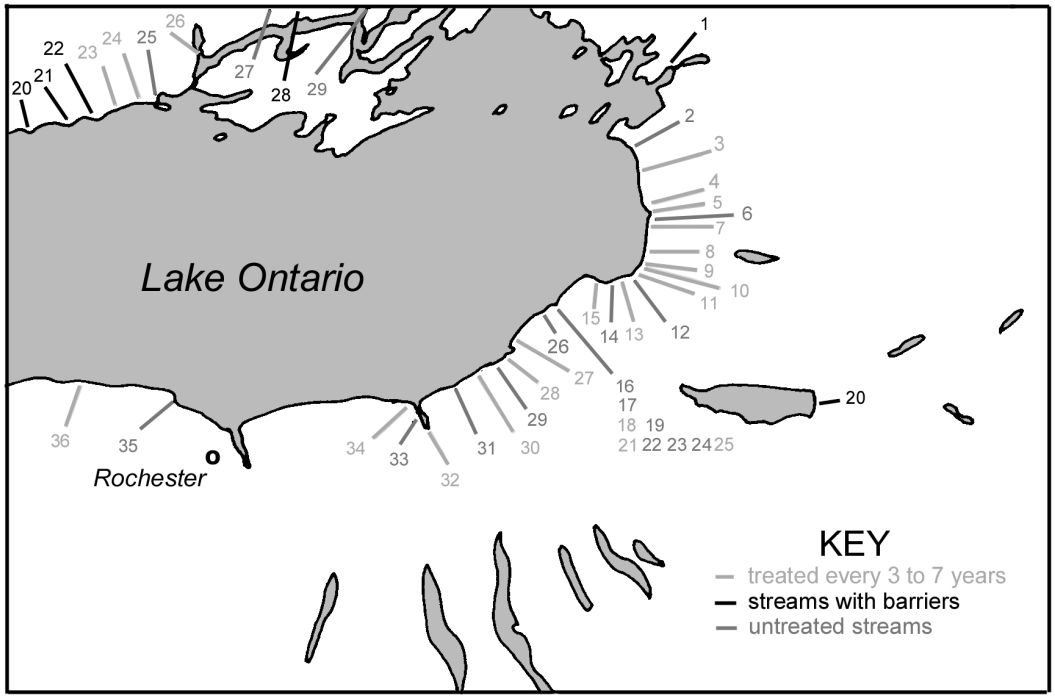

Figure 8. Sea lamprey stream management status for the eastern Lake Ontario drainage basin (map redrawn from Great Lakes Fishery Commission).

Table 4. List of stream names corresponding to numbered streams in Figure 8.

Lake Ontario, USA		
1 Black River	13 Little Salmon River	25 Coldspring Brook (Seneca River)
2 Stony Creek	14 Butterfly Creek	26 Rice Creek
3 ***South Sandy Creek***	15 Catfish Creek	27 Ninemile Creek
4 Skinner Creek	16 Oswego River	28 Sterling Creek
5 Lindsey Creek	17 Black Creek	29 Blind Sodus Creek
6 Blind Creek	18 Big Bay Creek	30 Red Creek
7 Little Sandy Creek	19 Scriba Creek	31 Wolcott Creek
8 Deer Creek	20 Fish Creek	32 Sodus Creek
9 Salmon River	21 Carpenter Brook	33 Third Creek
10 Grindstone Creek	22 Hall Brook	34 First Creek
11 Snake Creek	23 Coldspring Brook (Oneida Lake)	35 Northrup Creek
12 Sage Creek	24 Crane Brook (Seneca River)	36 Salmon Creek
Lake Ontario, Canada		
19 Covert Creek	23 Salem Creek	27 Moira Creek
20 Grafton Creek	24 Proctors Creek	28 Salmon River
21 Shelter Valley Creek	25 Smithfield Creek	29 Napanee River
22 Colborne Creek	26 Mayhew Creek	

Figure 9. First falls upstream from Monitor Mills Dam. Photograph taken on 4 May 2007.

The second falls is located just upstream of the road bridge at Wardwell Settlement Road, approximately 1.2 miles upstream of the first falls (Fig. 10). The second falls is approximately 3 feet in height and has a similar configuration as the first falls.

Figure 10. Second falls upstream from Monitor Mills Dam. Photograph taken on 4 May 2007.

Several types of lamprey barriers have been evaluated by the US Fish and Wildlife Service. Cheryl Kaye (US Fish and Wildlife Service, Marquette, MI; pers. communication) did not recommend installing an inflatable lamprey barrier at Monitor Mills Dam due to high cost (up to $400,000) and low reliability of the inflatable bladder. Ice movement and deterioration of the bladder material over time can lead to ruptures and subsequent failure. This system needs computer assistance and water level monitoring to be effective, which adds to the cost.

Two other types of barriers were suggested: lift gates (Figure 11) and aluminum stop logs (Figure 12). These can be installed for approximately $1000 and require less maintenance for successful operation. They do require manual inspection and monitoring for water level. Inspection would be required for spillway clearance of debris so this would not add to the overall cost.

Figure 11. Mechanical lift gate with gate in down position. This type of barrier could be installed, with modifications, at Monitor Mills Dam.

Figure 12. Adjustable aluminum stop logs set into the concrete as a lamprey barrier that allows for fish passage.

A public fishing easement extends approximately 110 feet downstream of the NYSDEC parking area at Monitor Mills Road on the east side of South Sandy Creek. Informal fishing and recreation occurs upstream of the road bridge, opposite the dam, on private property on the east side of the creek.

3.3 *Contaminants and pathogens*. Migrating fish have the potential to introduce contaminants and various parasites and pathogens into tributaries. Migrating salmon have been shown to contribute contaminants (such as mirex and PCBs) to other organisms in tributaries through eggs and carcasses (Low 1983, Lewis and Makarewicz 1988). Benthic invertebrates may also become contaminated by ingesting eggs or decomposing carcasses of migrating fishes. Contaminants can be magnified through bioaccumulation into resident fishes. Humans encounter similar risks as other organisms by consumption of migratory and resident fishes that have been exposed to contaminants. Few estimates have been made of the contaminant load that would be contributed to tributaries but it may less than 1% of the load present in Lake Ontario (Lewis and Makarewicz 1988). Sediment contamination from migrating fishes is unlikely in the main creek since little sediment is present and scouring by ice and high water flow will move any accumulated sediment downstream.

Risk of pathogenic contamination is of concern with the recent appearance of viral hemorrhagic septicemia (VHS), a rhabdovirus (rod-shaped virus) that was detected in the Bay of Quinte, Lake Ontario, in 2005, after a large die-off of freshwater drum.

VHS was subsequently detected in an archived muskellunge (collected in 2003) from Lake St. Clair. VHS is now present in Lake Erie, the Niagara and St. Lawrence rivers, and Consesus Lake, NY. The virus was implicated in fish kills in 2006 in Lake Ontario and the St. Lawrence River. VHS was limited to Atlantic and Pacific salmon, herring, and cod prior to 2003 but now, due to mutations, affects over 40 species of marine and freshwater fish. Those fish found in Lake Ontario, and killed by the virus, include muskellunge, smallmouth bass, northern pike, freshwater drum, gizzard shad, yellow perch, black crappie, bluegill, rock bass, white bass, shorthead and silver redhorse suckers, round goby, burbot, and walleye (www.dec.state.ny.us). Positive tests, but not deaths, have been found for bluntnose minnow, emerald shiner, and chinook salmon. Some of these fish species are present in South Sandy Creek.

Emergency regulations were adopted by NYSDEC (9 March, 2007; amended on 6 June) to prevent the spread of VHS by restricting the distribution of fish by humans. Fish collected from inland waters and intended to be used as bait can only be used in the originating water body, and cannot be transported overland by motorized vehicle without a permit from NYSDEC. Fish may be transported overland if they are certified to be free of VHS. There are other restrictions that apply to specific areas and uses (www.dec.ny.gov/regulations/28833.html). The extent of the risk is unknown since the sampling history for this pathogen has been of short duration, but it has been described as a major disease threat for the Great Lakes. Some state hatchery activities and sampling programs have been suspended to prevent the incidental introduction of VHS to other water bodies. VHS is not known to pose a risk to humans.

4.0 *Summary of possible effects from dam modification*.

Restoration of South Sandy Creek presents an opportunity to increase the migration and utilization of areas upstream of the dam by fishes, however, the present ecosystem has been altered by various upstream uses of land and water, and by the introduction of non-native fish species, such as carp and Pacific salmon, to Lake Ontario. Modifications to the Monitor Mills Dam that allows for fish passage have the potential for extending the lake ecosystem changes to South Sandy Creek upstream of the dam.

Migration of chinook salmon to areas upstream of the dam may increase their spawning success which could lead to greater population levels within the creek and lake. The increased population may also increase competition for food with brook trout and other fish species, particularly by the developing chinook larvae. The extent of suitable spawning habitat for brook trout and chinook salmon should be evaluated. Migration of other predatory fish (such as smallmouth and largemouth bass) and naturalized carp are possible but it is unlikely that these species would establish populations upstream of the dam since their preferred habitat is limited.

Migration of sea lamprey adults upstream poses the risk of increasing the population of sea lamprey within the creek, although the habitat for sea lamprey larvae is limited in areas upstream of the dam. A migration barrier could be incorporated into the fish passage design to minimize lamprey migrations. Sea lamprey is not a good swimmer in higher velocity water and migration barriers have been designed to take advantage of this characteristic. Treatment of the downstream portion of the creek for lamprey control will continue regardless of changes made to the dam.

An increase in contaminants to the upstream portion of the creek is possible. The extent of this contamination will depend on the numbers and contaminant load of migrating fishes. Chinook salmon would likely carry the highest contaminant load due to their higher lipid content and the affinity of mirex, PCBs, and dioxins to lipids. The increase of mirex to tributary streams was estimated to be less than 0.04% of the total mirex load in Lake Ontario in 1988. The reason for the fish consumption advisory for nearshore Lake Ontario fishes would also apply to high-lipid containing fishes in South Sandy Creek, such as chinook salmon.

An expansion of the occurrence of VHS is possible through the migration of infected fishes, which would be facilitated by the construction of a fish passage structure. It is possible that some fish can migrate upstream through the dam spillway in its present condition, under the assumption that the woody debris at the dam does not block passage. Modifications to the spillway should not be made until the extent of VHS-infected fish is determined.

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Rogers, W.B., Y.W. Isachsen, T.D. Mock, and R.E. Nyahay. 2000. New York State Geological Highway Map. New York State Museum Educational Leaflet 33. Albany, NY.

Attachment 1. Inspection reports (1917 and 1975) and a schematic plan of the dam and associated structures from 1917.

43 E Ches,

FORM IW51. 11-6-14-1000 (16-1038)

Acc. 382

(NOTICE: After filling out one of these forms as completely as possible for each dam in your district, return it at once to the Conservation Commission, Albany.)

STATE OF NEW YORK

CONSERVATION COMMISSION

ALBANY

80

DAM REPORT

July 5, 1917
(Date)

CONSERVATION COMMISSION,

DIVISION OF INLAND WATERS.

GENTLEMEN:

I have the honor to make the following report in relation to the structure known as the Monitor Mills Dam.

This dam is situated upon the South branch of Sandy Creek (Give name of stream) in the Town of Ellisburg, Jefferson County, about ½ mile (State distance) from the Village or ~~City~~ of Ellisburg. The distance down (Up or down) stream from the dam, to the road bridge (Give name of nearest important stream or of a bridge), is about 200 (State distance).

The dam is now owned by Mansford Lee Ellisburg N.Y. (Give name and address in full) and was built in or about the year 1905, and was extensively repaired or reconstructed during the year —.

As it now stands, the spillway portion of this dam is built of masonry (State whether of masonry, concrete or timber) and the other portions are built of concrete (State whether of masonry, concrete, earth or timber with or without rock fill).

As nearly as I can learn, the character of the foundation bed under the spillway portion of the dam is rock and under the remaining portions such foundation bed is rock.

The total length of this dam is 230 feet. The spillway or waste-weir portion, is about 211 feet long, and the crest of the spillway is about 4 feet below the top of the dam.

The number, size and location of discharge pipes, waste pipes or gates which may be used for drawing off the water from behind the dam, are as follows:

At the time of this inspection the water level above the dam was ft. 2 in. ~~below~~ above the crest of the spillway.

(State briefly, in the space below, whether, in your judgment, this dam is in good condition, or bad condition, describing particularly any leaks or cracks which you may have observed.)

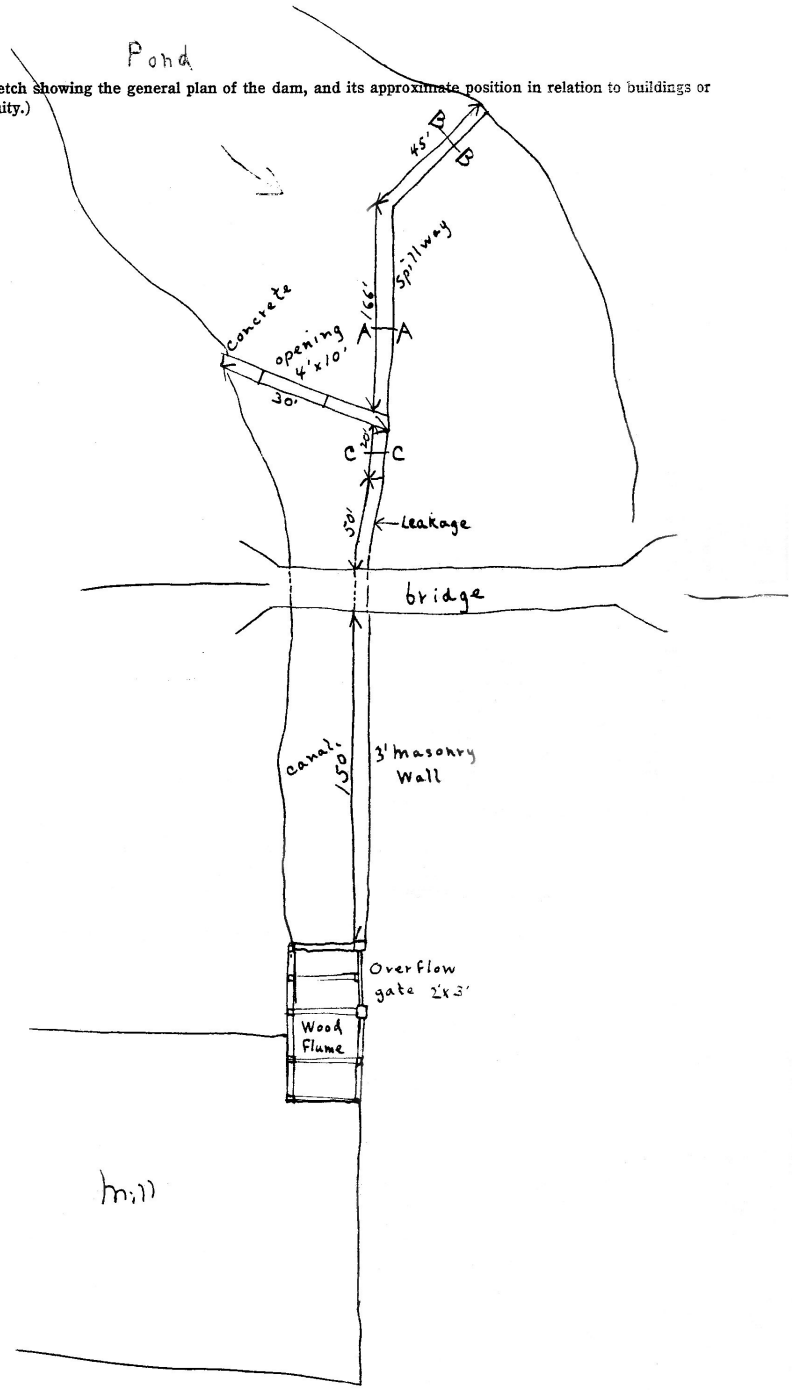
Dam is in good condition

Reported by Charles A. Prudhon
(Signature)

110 Stadium Pl
(Address—Street and number, P. O. Box or R. F. D. route)

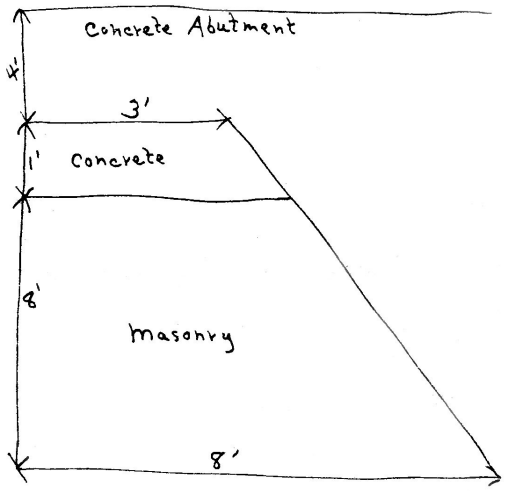
Syracuse N.Y.
(Name of place)

(In the space below, make a third sketch showing the general plan of the dam, and its approximate position in relation to buildings or other conspicuous objects in the vicinity.)

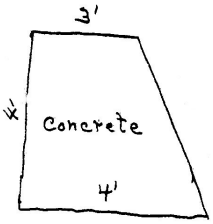


(In the space below, make one sketch showing the form and dimensions of a cross section through the spillway or waste-weir of this dam, and a second sketch showing the same information for a cross section through the other portion of the dam. Show particularly the greatest height of the dam above the stream bed, its thickness at the top, and thickness at the bottom, as nearly as you can learn.)

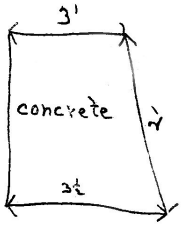
Section AA



Section BB



Section CC



NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DAM INSPECTION REPORT
(By Visual Inspection)

Dam Number	River Basin	Town	County	Hazard Class*	Date & Inspector
43	E. Ontario	Ellisburg	Jefferson	A-3	7/29/75 KDH

Type of Construction

- [ ] Earth w/concrete spillway
- [ ] Earth w/drop inlet pipe
- [ ] Earth w/stone or riprap spillway
- [ ] Concrete
- [x] Stone + concrete
- [ ] Timber

Use

- [ ] Water Supply
- [ ] Power
- [ ] Recreation
- [ ] Fish and Wildlife
- [ ] Farm Pond
- [x] No Apparent Use-Abandoned

Estimated Impoundment Size

- [x] 1-5 acres
- [ ] 5-10 acres
- [ ] Over 10 acres

Estimated Height of Dam above Streambed

- [x] Under 10 feet
- [ ] 10-25 feet
- [ ] Over 25 feet

Condition of Spillway

- [x] Service satisfactory
- [ ] In need of repair or maintenance
- [ ] Auxiliary satisfactory
- [ ] In need of repair or maintenance

Explain: _____

Condition of Non-Overflow Section

- [x] Satisfactory
- [ ] In need of repair or maintenance Explain: _____

Condition of Mechanical Equipment

- [ ] Satisfactory
- [ ] In need of repair or maintenance Explain: _____

Evaluation (From Visual Inspection)

- [x] No defects observed beyond normal maintenance
- [ ] Repairs required beyond normal maintenance

*Explain Hazard Class, if Necessary _____

3E-4 (10/74)

Attachment 2. List of fish species collected in South Sandy Creek. All fish species in left-hand column were collected in tributaries near and including South Sandy Creek. Those species listed under NYSDEC were collected in South Sandy Creek from the creek mouth to Interstate 81. Name changes as indicated: blank spaces represent no name change.

1931 *from* Greeley and Bishop (1932)		NYSDEC 1986 to 2005		
Scientific name	Common name	Scientific name	Common name	X = present
Lepisosteus osseus	longnose gar			
Salmo fario	brown trout	Salmo trutta		
Catostomus commersoni	common sucker	Catostomus commersonii	white sucker	X
Erimyzon oblongus oblongus	eastern chub sucker	Erimyzon oblongus	creek chubsucker	
Moxostoma rubreques	common redfin sucker	Moxostoma valenciennesi	greater redhorse sucker	
Cyprinus carpio	carp			X
Rhinichthys atronasus	black-nosed dace	Rhinichthys atratulus	Eastern blacknose dace	X
Rhinichthys cataractae	long-nosed dace		longnose dace	X
Leucosomus corporalis	fallfish	Semotilus corporalis		X
Semotilus atromaculatus	horned dace		creek chub	X
Margariscus margarita	Nachtrieb's minnow		pearl dace	
Clinostomus elongatus	red-sided dace		redside dace	X
Prille neogaea	fine-scaled dace	Phoxinus neogaeus	finescale dace	
Chrosomus eos	red-bellied dace	Phoxinus eos	redbelly dace	
Notropis bifrenatus	Cayuga minnow		bridle shiner	X
Notropis heterodon			blackchin shiner	X
Notropis anogenus		Opsopoedus emiliae	pugnose minnow	
Notropis heterolepis	blacknosed minnow		blacknose shiner	X
Notropis volucellus			mimic shiner	X
Notropis deliciosus stramineus	straw-colored minnow	Notropis stramineus	sand shiner	X
Notropis hudsonius	spot-tailed minnow		spottail shiner	X
Notropis whipplii spilopterus	satin-finned minnow	Cyprinella analostana	satinfin shiner	
Notropis cornutus	common shiner	Luxilus cornutus		X
Notropis rubellus	rosy-faced minnow		rosyface shiner	
Notemigonus crysoleucas	golden shiner			X
Hybognathus hankinsoni	Hankinson's minnow		brassy minnow	
Hybognathus nuchalis	silvery minnow	Hybognathus regius		X
Hyborhynchus notatus	blunt-nosed minnow	Pimephales notatus	bluntnose minnow	X
Pimephales promelas	fat-head minnow		fathead minnow	X
Exoglossum maxillingua	cut-lips minnow		cutlip minnow	X
Campostoma anomalum	stone roller minnow		central stoneroller	
Ameiurus nebulosus	common bullhead		brown bullhead	X
Ameiurus melas	black bullhead			
Noturus flavus	stonecat			X
Schilbeodes gyrinus	tadpole cat	Noturus gyrinus	tadpole madtom	
Umbra limi	mud minnow		central mudminnow	X
Esox americanus	little pickerel		grass pickerel	X

Attachment 2 *continued*. List of fish species collected in South Sandy Creek and vicinity.

1931 *from* Greeley and Bishop (1932)		NYSDEC 1986 to 2005		
Scientific name	Common name	Scientific name	Common name	X = present
Esox lucius	northern pike			X
Anguilla bostoniensis	eel	Anguilla rostrata	American eel	X
Fundulus diaphanus	barred killifish		banded killifish	X
Perca flavescens	yellow perch			X
Perca caprodes	log perch		logperch	X
Boleosoma nigrum olmstedi	Johnny darter	Etheostoma olmstedi	tessellated darter (different species)	X
Poecilichthys exilis	Iowa darter	Etheostoma exile		
Catonotus flabellaris	fan-tailed darter	Etheostoma flabellare	fantail darter	X
Micropterus dolomieu	small-mouthed bass		smallmouth bass	X
Apiltes salmoides	large-mouthed bass	Micropterus salmoides	largemouth bass	X
Eupomotis gibbosus	common sunfish	Lepomis gibbosus	pumpkinseed	X
Ambloplites rupestris	rock-bass		rock bass	X
Alosa pseudoharengus	skipjack		alewife	X
Eucalia inconstans	brook stickleback	Culaea inconstans		X
Gasterosteus aculeatus	two-spined stickleback		three spined stickleback	
		Pomoxis nigromaculatus	black crappie	X
		Lepomis macrochirus	bluegill	X
		Hypentilium nigricans	northern hogsucker	X
		Amia calva	bowfin	X
		Oncorhynchus mykiss	rainbow trout	X
		Petromyzon marinus	sea lamprey	X
		Cyprinella spiloptera	spotfin shiner	X
		Salvelinus fontinalis	brook trout	X