



Rockbridge Conservation Watershed Committee

Construction and Maintenance of Lake Merriweather and Goshen Dam, Chronology 1966-2023

Narrative

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The chronology following this narrative introduction reveals that the problems of water quality, sedimentation, and dam safety downstream of Goshen Dam are caused by the management of the dam and Lake Merriweather. It also shows the effects are long-standing and largely ignored by its owners. Virginia's State Water control Board (SWCB), Department of Conservation Resources (DCR), Department of Wildlife Resources (DWR), VDH, Natural Bridge Soil and Water Conservation District (NBSWCD), Department of Environmental Quality (DEQ) and the U.S. Congress, Environmental Protection Agency (EPA), Army Corps of Engineers (ACE), and Fish and Wildlife Service (FWS) have all worked to make Goshen Dam safe and the Little Calpasture River clean. Yet, no comprehensive or integrated solution has been achieved.

The owner – National Capital Area Council of the Boy Scouts of America (NCAC-BSA) – oversaw the completion of the Goshen Dam and, in the summer of 1967, began its camping program on the Goshen Reservation (Reservation). As a non-profit, NCAC-BSA was allowed by Rockbridge County Board of Supervisors to pay no property taxes and, because the dam was built before the Clean Water Act in 1972, the NCAC-BSA was grandfathered and not required to obey the legislation.

The lake is the primary focus of an attractive camping program for over 7,000 campers from the D.C. area who enjoy the experience of various programs spread over 6 weeks in the summer.

During the first several years of operation, sediment gradually built up behind the dam and eventually began to have obvious negative effects in the lake and the downstream river caused by lowering the lake and storm events. According to NCAC-BSA, lowering the lake was necessary for maintenance and for a concern that the dam could be breached in a big storm.

Then, in December 1992, the Virginia Department of Wildlife (DWR), formerly Game and Inland Fisheries, was notified of a fish kill in the Little Calfpasture River (L. Calf). Since the Department of Environmental Quality (DEQ) is the Commonwealth's primary agency for the protection of water quality, the department issued a Notice of Violation for the fish kill in the Little Calfpasture river below Goshen Dam.

DEQ collaborated with DWR and other state and federal agencies in analyzing the water contamination that caused the fish kill and reported it to the State Water Control Board (SWCB). This board considers special orders to resolve violations of the regulations. In this instance, SWCB issued a Consent Order in 1993 requiring NCAC-BSA to implement an alternate method for draining the lake without opening the subsurface discharge or to construct a settling basin for removing sediment when using the subsurface discharge. In 1998, the SWCB revised the order further and required NCAC-BSA maintain a full pool, except in emergencies, and to submit quarterly reports to DEQ.

For more than two decades after the fish kill, the existing records reveal "inconsistent and negligent compliance." Even so, in 2008, the SWCB approved a regulation which indicated that "aquatic conditions (in the Little Calfpasture) are expected to gradually recover and meet the general aquatic life uses at 0.02 miles above its confluence with the Calfpasture River." (Administrative Code 9VAC25-260-310, Part VII, gg.) Another 10 years passed, and there was no indication from monitoring that recovery was in sight. Nevertheless, in September 2014, DEQ reported that the special Consent Order was terminated, further discouraging Rockbridge residents of any governmental help in trying to save the Pass.

On the safety issue, in 1979, the US Army Corp of Engineers (ACE) listed Goshen Dam as a "High" hazard dam in accordance with the Federal dam safety guidelines. Then, after the fish kill, the US Congress in 1996 apportioned \$6 million to the privately owned dam for NCAC-BSA to "repair and upgrade the dam and appurtenant features." By 2006, NCAC-BSA had not addressed the problem, and ACE issued its *Dam Safety Evaluation Study*, which recommended among several actions to keep the lake at full pool. Finally, NCAC-BSA did not follow up with those recommendations. Instead, they decided they could meet the regulations of the Commonwealth by raising \$4 million and building a spillway.

Given that decision, ACE issued a final Memorandum of Agreement with NCAC-BSA in November 2012: The Corps would design and construct a debris boom. It would also evaluate and recommend design and repairs (if funding is available) for the existing spillway gates. In no event should the total cost for the work exceed the \$1,500,000 of federal funds that remained. Upon exhaustion of repair funds, the Army will have fulfilled any and all obligations pursuant to 507(3) of the Water Resources Development Act of 1996.

Rockbridge Conservation (RC, but known at the time as RACC) was informed that the ACE engineering report following a visit to Goshen Dam was done for a private party

and was not available to the public; however, through an FOIA request, RC was provided the *Condition Assessment and Rehabilitation Prioritization Report*. The report recommended global gate replacement and a number of other structural component improvements.

Subsequently, the ACE arranged permanent mitigation credits for a small wetland below the dam and, in 2015, ACE contracted to have dredging of sediment behind the dam. Otherwise, the Corps informed RC that its responsibility for Goshen Dam is now limited to the protection of wetlands and that they have “no dog in the fight” over water quality. In the meantime, the spillway construction was completed in 2013 with oversight and approval from the Virginia Department of Conservation and Recreation (DCR).

DCR is the Commonwealth’s regulatory agency for dam safety. After a gate failure in 2010, pressure to address the safety issues caused by the dam required that NCAC-BSA present a plan that would prevent the dam from the danger of over-topping. After refusing the ACE recommendations to either replace or rehabilitate the gates, a spillway design by a Roanoke engineering firm contracted by NCAC-BSA was approved by DCR.

With the completion of the spillway in 2013, DCR also approved the NCAC-BSA’s decision to keep the lake lowered to minimum pool during the non-camping season. In this instance, DCR did not require analysis of alternate management techniques for maintenance and removal of debris, tree-planting, or removal of sediment to maintain lake depth that would help protect downstream water quality. The resulting construction of a spillway dealt only with engineering safety and did not include features for water quality, downstream recreation, wildlife preservation, or fish passage. Rockbridge Conservation was informed that DCR was not responsible for water quality, only safety matters.

In addition, DCR approved NCAC-BSA’s Emergency Action Plan without public comment. Even so, RC sent comments to DCR on the plan in July 2013, mainly expressing the need for a more effective communications plan for informing those on the river when the lake is being significantly lowered and, in the event of a flood and potential overtopping of the dam, a horn alarm. The approved system of informing only the Rockbridge County emergency management office is ineffective and unreliable. A text or email to let residents and recreational users know of a dam failure in the middle of the night is not viable – especially in a rural area where cell phone and internet service are either not available or affordable for residents in the area. And, if the dam does fail, there is no time for a fireman to warn those in the Pass.

DWR, another agency involved in the NCAC-BSA decisions for dam and lake management, oversees the Goshen-Little North Mountain Wildlife Management Area which borders the Goshen Reservation and has regulatory authority focused on wildlife impacts. As you can see in the following chronology, the department has been involved in several efforts to help restore the Little Calfpasture River below the dam.

After the dam had been completed and camping began in June 1967, DWR reported there were nine unauthorized sediment discharges from 1967 – 1992. Then, in 1992 the department was alerted to the fish kill directly below the dam. This began a long investigation of how to solve the problem. Subsequent benthic monitoring over the years has shown that significant impairment continues. The dam prevents any fish passage upstream and, although the department could become more active should there be another fish kill, there are likely no longer any fish to be killed.

During this whole period, DEQ was continuing to address the problem of sediment dumping and, in 2010, designed a Total Maximum Daily Load (TMDL)* plan which was approved by the US Environmental Protection Agency (EPA). This document suggested models to help bring the Little Calfpasture back to health; however, the TMDL is a voluntary document and NCAC-BSA chose not to volunteer. In fact, DEQ reports that NCAC-BSA never responded to the TMDL in any way. Upon asking the TMDL division of EPA in October 2014 what, if anything, could be done to implement the 2010 TMDL design, RC was told that it was up to ACE. At the same time, the Corps reiterated that Goshen Dam is a recreational dam, not a flood control dam.

Throughout the 2000s, Natural Bridge Soil & Water Conservation District (District) and RC contacted every agency and sub-agency involved with water quality, dam safety, health regulations, wildlife safety, endangered species, significant caves, regulatory oversight, significant lakes, wetlands, dredging. All responded, mostly politely, and indicated that they did not have the authority to do anything more.

After termination by SWCB of the Consent Order in 2008, NCAC-BSA informed DEQ of its lake management plan, but it did not include a procedure for dealing with the sediment problem. DEQ continued ambient monitoring above and below the dam on the Little Calfpasture bi-monthly which had led to the 2010 TMDL; however, they told RACC in 2013 there was no way to implement the TMDL without NCAC-BSA participation.

Another agency involved with issues at the Reservation during these years was the Virginia Department of Health (VDH). VDH requires an annual report of the self-inspection of the wells in the six camps on the Reservation. NCAC-BSA also performs water quality tests at five other locations before each camping season. During the 2002 consideration by the National BSA for the Jamboree to be held on the Reservation, an inadequate sewage system was noted. There was significant local opposition, and BSA chose a West Virginia site for the Jamboree. In 2007, 41 vault privies were finally added throughout the Reservation.

VDH records also show that a gray water system built in 1999 at one of the camps was still adequate; however, in anticipation of growth, construction plans were approved for updating the system. In the inspection process, VDH discovered an unpermitted waste lagoon which was not functioning appropriately and had been leaking untreated waste into the tributaries of the Calfpasture and Little Calfpasture rivers. DEQ fined BSA

\$26,000 in September 2016 and required a closure process of the leaky system which was addressed and completed November 30, 2017.

When the Natural Bridge Soil & Water Conservation District (District) recognized that the 2010 TMDL was not going to be acknowledged, they requested DEQ revisit the process. In 2016 DEQ agreed and a series of meetings of working groups representing the agricultural community and another concerned with lake management was begun. DEQ requested, and NCAC-BSA agreed, to participate in all meetings.

In April 2017, a steering committee of the partners met to discuss the information that had been gathered and decide how to proceed. In May, DEQ introduced the draft implementation plan at public meeting. A public comment period followed, after which, the final plan was submitted to the EPA and was approved in December 2017. Yet again, NCAC-BSA decided they would not participate.

The District at this point appealed to the Virginia Secretary of Natural and Historic Resources for guidance. The Secretary came to the Pass in 2019 to meet with members of the District and the Rockbridge county administrator. Shortly, after that NCAC-BSA came to the table and, after a lengthy effort to acquire funding, in 2020 the goals and best management practices began to take effect.

In addition to the many state and federal agencies who have been involved in different aspects of the problems with Goshen Dam, the Maury Service Authority (MSA), downriver from Goshen Dam, withdraws and treats drinking water from the Maury River for Lexington and Rockbridge County. Whenever the lake is lowered, the resulting silt turns up in the plant and has to be specially treated at extra cost. Specific notification to MSA would allow them, at least, to anticipate and implement the needed changes to their procedures. Yet, NCAC-BSA continued to inform only the county emergency management office.

In early 2023, The News-Gazette ran a series focused on physical safety and management of the gates, and a James Madison University professor prepared the *Final Report: Turbidity and Flow Monitoring in Lake Merriweather, May 2023*. It concluded: "The lake management plan should also consider long-term planning for the lake. This could include a plan for addressing progressive lake infill with sediment through a long-term dredging program. The plan could also address aging equipment and infrastructure with an equipment and dam infrastructure upgrade and replacement program. Lastly, a long-term plan could even address end-of-life scenarios for the lake and the dam."

Then, a terrible surprise after the summer camping program ended In July 2023, the NCAC-BSA immediately decided to lower the lake on August 4, 2023.... completely. Poisonous algae, along with the sediment and mud, was swept out of the lake for the next three weeks. The Maury River had recently been designated a Scenic River. Now, it was not only smelly and unpleasant, but it was also toxic. No one could fish, boat, or swim. Wildlife was threatened. Evidence of the release was recognized all the way to

Glasgow and into the James. In October, the effects were still noticeable on the rocks and banks of the river.

The Scouts reported that they needed to prepare the lakebed for dredging. Sediment accumulation in the lake is naturally an ongoing problem for the NCAC-BSA, and the lake is silting up despite being flushed every year. In 2013, the average depth was 6.68 feet and the deepest portion behind the dam, 20 feet – 6 feet less than when the dam was built in 1966. There had been no consideration of the effects this kind of management has on the residents and tourists and wildlife.

As the practice has continued over the past 60 years, Goshen Pass has been noticeably affected by the sediment being dumped from the lake. Residents, kayakers, swimmers, and fishermen routinely observe and complain about the plume of mud sliding out of the Little Calfpasture and continuing downstream. Today, water monitoring indicates that the Little Calfpasture River below the dam continues to be benthically compromised and polluted by sediment – essentially it is dead.

Most of the dwellings in the path of any dam breach have been there for decades before the dam was built, and their owners have important safety needs, but they would also prefer to have clean water in the river that passes by their houses. In addition to being a very popular tourist destination, local citizens consider Goshen Pass – the first area in Virginia to be recognized for a Natural Heritage designation – to be a very special place. It is visited frequently for picnics, reunions, tubing, kayaking, swimming, birding, hiking, and for fishing and hunting year-round.

All 43 miles of the Maury River run through Rockbridge County and, for all the reasons described above, we need to protect it. However, as the following chronology shows, despite multiple agencies' efforts – or perhaps because of the fragmentation caused by the number of regulatory authorities involved – the harmful impacts of Lake Merriweather and Goshen Dam on the Little Calfpasture, Maury, James, and Chesapeake Bay watersheds continue without resolution. Those delegated with the authority to address these problems have not found a way to direct the process toward a reliable solution that contributes to the safety of residents and the protection of water quality, wildlife, human health, and the environment.

*Total Maximum Daily Load: the total amount of nitrogen, phosphorus, and sediment that can be present in a stream for it to remain safe for drinking, swimming, fishing, and other uses.

General Index to Chronology

1960-1965

History/Background
Tax Exemption approved by BOS

1992-1993

Fish Kill
SWCD Consent Order

1994-1995

DEQ & DCR: no need to lower lake

1996-1998

SWCB: Consent order

DEQ: assessment
WRDA: 1996 US congressional appropriation for Goshen Dam
SWCB: Amendment A to Consent Order

1999-2005

VDH: Sewage disposal system permit
USACE: Environmental assessment
DEQ: D/O stress added to impairment
NCAC-BSA: few quarterly reports; many lake lowerings

2006-2008

DEQ: D/O initial tests successful
USACE: Cost/benefit analysis of repair & maintenance of dam
Vault privies installed
DEQ: depth measurement of lake
Noted: no lowering of lake during camp season needed under any circumstances.
SWCB: special standard adopted for Little Calfpasture

2009

Boy Scout Jamboree
DCR & DEQ: no dam safety issues in keeping lake at full pool

2010

Gate failure
TMDL to Address a benthic Impairment in the Little Calfpasture
EPA approves 2010 TMDL
NCAC-BSA: no money for repairs

2011-2012

NCAC-BSA: \$4.3M raised to pay for new spillway
USACE: replacement of boom costing \$39,489.30.
Jurisdictional Determination: F&R required to respond to USACE comments on proposed spillway
DEQ 2012 Integrated Report: Little Calfpasture benthic & sediment impairment continues

2013

F&R: completion of new spillway
USACE: *Condition Assessment and Rehabilitation Priorities Report on Goshen Dam/Lake Merriweather 2014*
Report to Geological Society of America on seasonal downloads of lake: 2000-2013
NCAC-BSA: complaints to DEQ about neighbors
DCR & F&R: rationale for seasonal lowering of the lake
SWCB: termination of Consent Order
DCR: O&M manual not required
DEQ 2014 Integrated Report: L. Calf benthic and sediment impaired

2015

USACE: removal of sediment and debris behind dam: \$187,096
Report from recreational user on Goshen Pass
NBSWCD request to implement 2010 TMDL
NCAC-BSA: refusal to participate in TMDL
NCAC-BSA: assets in 2014

DEQ: more reporting problems on lowering lake
VDH: report on unpermitted leaking lagoon

2016

RC letters to DCR-Natural Heritage, and VDH: take no responsibility for water quality
NBSWCD: request for a new TMDL on L. Calf DEQ: NCAC-BSA fined \$26,000 for sewage disposal into the Calfpasture and Little Calfpasture

2017

DEQ 2016 Integrated Report: L. Calf remains impaired for sediment and benthic
DEQ: new TMDL on L. Calf
EPA: approval of TMDL
Suggestions from Sen. Mark Warner

2018

DEQ: after participating in TMDL study NCAC-BSA refuses to take part in the implementation
DGIF & NCAC-BSA: agree to allow restricted recreation on Reservation

2019

NBSWCD request: Natural Resources Secretary Strickland visits Goshen Pass
NCAC-BSA: agrees to participate in 2017 TMDL Implementation plan
NBSWCD: request for Significant Lake status of Lake Merriweather

2220 – 2222

County receives DEQ 319(h) grant to implement TMD
DEQ: depth study
Flow & depth meters installed in lake
DCR: conditional O&M permit for NCAC-BSA

2023

NCAC-BSA: 850 acres from Reservation on sale
Four-part study of Goshen Dam safety published in *Lexington The News-Gazette*
JMU report: analysis of progress of BMPs in TMDL
NCAC-BSA: lowers lake Aug 4th completely over 3 weeks causing major pollution
Maury River Alliance formed in response to pollution of river



Rockbridge Conservation Watershed Committee

Chronology of Construction and Maintenance of Lake Merriweather and Goshen Dam

- *List of acronyms, notes, abbreviations and sources is located at the end of this document.*
- *Note: Department of Game & Inland Fisheries (DGIF) changed name to Department of Wildlife Resources (DWR) in 2022*
- *References without stated sources are located in NCAC-BSA file box in Rockbridge Conservation office.*

<i>Year</i>	<i>Event</i>
1960	NCAC-BSA purchases 4,000 acres bordering the DGIF's Goshen-Little North Mountain. WMA and the Little Calfpasture River for \$300,000. (NCAC-BSA Camp PMI website – BF)
	Rockbridge County Board of Supervisors exempts NCAC-BSA, a non-profit, from paying real estate taxes. (RC Community Development)
1960-66	NCAC-BSA solicits sponsors from the Washington area to develop the property into a multiple camp Scout Reservation. Sponsors for 6 base camps are found, including money donated by Marjorie Merriweather Post to dam the Little Calfpasture and build a central administrative camp. (NCAC-BSA Camp PMI website – BF)
Aug 1964	NCAC-BSA contracts with Herbert Associates Inc of Harrisburg PA to provide a Feasibility Report for the proposed recreational dam and lake. (USACE 2006 DSE: Technical, Appendix 7)

Mar 1965	Report from Herbert Associates recommends that an earthen dam approximately 40 feet high, 1200 feet long, with a 138 foot long concrete overflow section topped with Bascule gate and impounding about 4700 acre feet of water on 438 acres at a normal water surface elevation of 1369 feet above sea level. Cost: \$606,000 plus an additional \$68,000 for required roads and bridges. (USACE 2006 DSE; Technical, Appendix 7)
1966	Construction of recreational dam completed for NCAC-BSA by Herbert Associates. (NCAC-BSA website – BF)
June 1967	Goshen Reservation opens for camping (NCAC-BSA website – BF)
1967-92	DGIF reported 9 unauthorized sediment discharges from Lake Merriweather (letter: US Fish & Wildlife Service to NCAC-BSA Apr 28, 1993 – BF)
1976-80	Scout Reservation Camp PMI (Parking Management Inc.) closed by the Council due to ineffective drainage field. Reopens 1981. (NCAC-BSA Camp PMI website – BF)
1979	USACE: Goshen Dam identified as a “High” hazard dam. (Phase I– Inspection Report National Dam Safety Program, Goshen Dam, Inventory No. 16301, dated March 1979, by J.K. Timmons and Associates, and Schnabel Engineering Associates Inc, Richmond VA – USACE file – BF)
Nov 1985	Election Day Flood (Hurricane Juan). Goshen Pass closes for a year to allow VDOT to rebuild the road.
Apr 1992	NCAC-BSA: dam gates are damaged in April 1992 flood.

Dec 14 1992	DEQ and DGIF receive reports of excessive sedimentation and find excess due to Lake Merriweather being drained via a subsurface discharge valve of the dam. (DEQ memo)
Dec 17 1992	Fish kill below the dam reported. DGIF notified. 223 dead fish counted (Memoranda DGIF and DEQ – BF)
Jan 1993	NCAC-BSA complains to DGIF about press coverage. DGIF response: measurable silt on substrate at Rockbridge Baths; increased water treatment by MSA needed to handle impact; notice of criminal violations of codes; alteration of operational handling of dam suggested. (Letter from DGIF to NCAC-BSA, Jan 8, 1993 – BF)
Jan 15 1993	USACE: notifies NCAC-BSA of unauthorized discharge of lake sediment, a violation of Section 404 of CWA. Requires restoration of downstream impacts of sediment dumping. (Letter Jan 15, 1993 – BF)
Jan 15 1993	Notice of Violation (NVO) VRO-01-VRO-001) issued for fish kill. (DEQ memo)
Jan 22 1993	Letter from J. Alexander Hopper, NCAC-BSA to James Preston, DEQ-VRO, in response NOV. Letter stated that draining of the lake by the subsurface valve was to facilitate repairs and the discharge of the sediment was unintentional. NCAC-BSA: “We want to do whatever is right and proper, not only to comply with the letter of the law but also to be good trustees of the land.” (DEQ memo)
Jan 26 1993	Meeting between DEQ and NCAC-BSA at Goshen Scout Camp. Issues discussed included how DEQ releases information to the public and solutions for the sedimentation problem from the lake. (DEQ memo)

Feb 4 1993	Ralph Bolgiano, DEQ-VRO, conducted a benthic survey in the Little Calfpasture and Maury Rivers. Both stations on the L. Calf showed an impact. Significant impact on the Maury downstream of the confluence was not proven. (DEQ file)
Feb 6 1993	Letter from J. Alexander Hopper, NCAC-BSA, to DEQ with a proposal regarding the draining of Lake Merriweather to limit the sedimentation problem. (DEQ memo)
Feb 6 1993	Letter from J. Alexander Hopper, NCAC-BSA, to Suzanne Bambacus, DEQ-OECA, disputing some of the conclusions which had been drawn by DEQ staff regarding the impact on Lexington's water supply and the need to lower the lake for repairs. (DEQ memo)
Feb 9 1993	Meeting between NCAC-BSA and DEQ. No meeting summary in the file. (DEQ memo)
Feb 12 1993	Memo from Paul Bugas, DGIF, to Ralph Bolgiano, DEQ-VRO, regarding Little Calfpasture fish sampling and concluding that the sedimentation below the dam is so severe that the habitat for traditional upland stream fish species was "virtually nonexistent, and presence of imbedded sand and silt in Little Calfpasture below dam will undoubtedly have a negative impact on the future benthic community even in the absence of further releases from the lake. (Memorandum SWCB, Feb 23, 1993, Qualitative Benthic Survey, Little Calfpasture and Maury Rivers – DGIF file)
Feb 19 1993	Letter from Richard Burton, DEQ, to J. Alexander Hopper, NCAC-BSA, laying out minimum steps which would need to be taken if the lake was drained again: VRO would provide the equipment and training necessary to gather and report the required information. (DEQ memo)

Mar 3 1993	Letter from Suzanne Bambacus, DEQ-OECA, to J. Alexander Hopper, NCAC-BSA, with Consent Order (CO) to be signed and returned. The CO only addressed the use of the subsurface valve to drain the lake. (DEQ memo)
Mar 4 1993	Letter from Suzanne Bambacus, DEQ-DECA, to J. Alexander Hopper, NCAC-BSA, with a revised CO to be signed and returned. (DEQ memo)
Mar 8 1993	Letter from Chuck Burgdorf, NCAC-BSA, to Lance Gardner, DEQ, stating that due to flooding, the daily water tests had been discontinued until the lake level was down to 9'6" (DEQ memo)
Apr 1993	DEQ: Notice of Violation of Section 62.1-44.5 of Code of Virginiaunpermitted discharge of sediment which resulted in an alteration of physical, chemical, or biological properties of State waters and produced a fish kill.(NOV No. 93-01-VRO-001)
Apr 15 1993	Memo from Ralph Bolgiano, DEQ-VRO, to Ray Tesh, DEQ-VRO, documenting an April 13, 1993 complaint of muddy water in the Maury River at Rockbridge Baths. The source was traced back to Lake Merriweather. Bolgiano attempted to inspect NCAC-BSA's monitoring results, but no sampling had been completed since Mar 19, 1993, Sampling was completed on Apr 14, 1993, and the results were within the standards stated in the CO. (DEQ memo)
Apr 15 1993	Letter from Ralph Bolgiano, DEQ-VRO, to Chuck Burgdorf, NCAC-BSA, advising him that discharge waters must be monitored when the subsurface valve is used to comply with the CO. (DEQ memo)
Apr 16 1993	Letter from John Roland, DEQ-OECA, to Alexander Hopper, NCAC-BSA, regarding the lack of testing of the Lake Merriweather discharge. (DEQ memo)

Apr 19 1993	Letter from Alexander Hopper, NCAC-BSA, to Suzanne Bambacus, DEQ-OECA, explaining why the required testing had not been conducted. Mr. Burgdorf (NCAC-BSA) requested that the sampling schedule be revised because it didn't make sense to him to be testing when flood waters were coming through the lake. (DEQ memo)
Apr 28 1993	US FWS: possible impact by lowering lake on endangered James spiny musel.
Apr 1993	A Consent Order imposed by the SWCB requires NCAC-BSA to implement an alternate method for draining the lake without opening the subsurface discharge or to construct a settling basin for removing sediment when using the subsurface discharge. (Special Consent Order, 1993 – BF)
May 5 1993	Letter from Suzanne Bambacus, DEQ-OECA, to Alexander Hopper, NCAC-BSA, stating the CO had been approved at the Apr 26, 1996 SWCB meeting and requesting that payment of the civil charge, investigative and fish replacement costs be made. (DEQ memo)
May 14 1993	Letter from Alexander Hopper, NCAC-BSA, to Suzanne Bambacus, DEQ-OECA, transmitting \$221.89 for fish kill and \$511.46 for investigative fees. (SWCB, Enforcement, Consent Order, Apr 30, 1993 – BF)
Sep 3 1993	Letter from Robert Hume, Norfolk District Corps of Engineers, to Chuck Burgdorf, NCAC-BSA, in regards to the discharge of sediment and asking NCAC-BSA to consider ways to reduce the sedimentation problem. (DEQ memo)
Sep 27 1993	Letter from Alexander Hopper, NCAC-BSA, to Ray Tesh, DEQ-VRO, explaining NCAC-BSA's future plans for the Lake Merriweather dam as required by the CO: 1) NCAC-BSA will follow the procedures outlined in the CO when the lake was drained via the subsurface valve, 2) NCAC-BSA would dredge the lake to remove the accumulated silt from the base of the dam by 1998 and construct an

	emergency spillway, and 3) a capital campaign would be run in the 1994-1998 time frame to pay for the capital improvements. (Letter from NCAC-BSA to DEQ Sep 27, 1993, – BF)
Oct 13 1993	DEQ benthic survey: no recovery in Little Calfpasture, still severely impacted, problem continuing even without the use of the sub-surface valve. (DEQ memo 11/29- — BF)
Nov 4 1993	Memo from Lance Gardner, DEQ, to Ray Tesh, DEQ-VRO, regarding 9/27 letter from NCAC-BSA suggests a passive emergency spillway and a cofferdam structure to be used when repairs are needed. (DEQ memo)
Dec 15 1993	Paul Bugas, DGIF: despite NCAC-BSA operation of dam as required by CO, exposed mud flats of Lake Merriweather causing plume of silty water downstream as observed from swinging bridge. (Letter: DGIF to DEQ Dec 15 1993 – BF)
Dec 1993	Complaint from Goshen Pass and Rockbridge Baths residents about turbidity in the Little Calfpasture and Maury rivers. (DEQ memo)
Dec 17 1993	Letter from Ray Tesh, DEQ-VRO, to Alexander Hopper, NCAC-BSA, transmitting the latest benthic survey and requesting more information to satisfy Appendix A of the CO. (DEQ memo)
1993-97	DEQ: benthic monitoring spring & fall 100 meters downstream of dam shows Little Calfpasture severely impaired with little change during four years. (USACE DSE, p. 8, Enviromental)
Jan 20 1994	Letter from Jay Gilliam (downstream resident) to Ray Tesh, DEQ-VRO, requesting DEQ to take steps to solve the sedimentation problem caused by Lake Merriweather. (DEQ case history)

Feb 28 1994	Letter from Jay Gilliam to Suzanne Bambacus, DEQ-OCEA, requesting that he be kept apprised of what was taking place between NCAC-BSA and DEQ. (DEQ case history)
Mar 1994	DEQ: sedimentation problem in Little Calfpasture has not been alleviated and benthic community remains severely impaired.
Mar 10 1994	Site visit by Ralph Bolgiano, DEQ: Little Calfpasture moderately turbid. (DEQ case history)
Mar 29 1994	DEQ, DCR, DGIF, and Dam Safety officials meet to discuss terms of 1993 Consent Order. (DEQ Mar 29, 1994 – BF)
Mar 29 1994	Letter from Suzanne Bambacus, DEQ-OECA, to Donald Reinhardt, NCAC-BSA, rescheduling a meeting and explaining that the sedimentation problem was continuing and the benthic community below the dam was still severely impaired (DEQ case history)
Mar 1994	DEQ verifies that the sedimentation problem has not been alleviated and benthic community remains severely impaired. (DEQ Mar 29, 1994 – BF)
Apr 1994	Meeting of DEQ, DCR, and DGIF officials with NCAC-BSA: siltation problem continues, caused by erosion of the exposed lake bottom when pool level lowered in winter. (Memorandum DEQ office of compliance Apr 19, 1994 – BF)
Apr 1994	DCR: lake lowering not required for dam safety, only emergency lowering following protocol of CO for gate repair needed. (Memorandum DEQ , office of compliance Apr 19, 1994 – BF)

Apr 13 1994	Complaint from C. T. McCormick regarding turbidity in the Little Calfpasture and Maury rivers. (DEQ case history)
Apr 13 1994	Letter from Donald Reinhardt, NCAC-BSA, to Duncan McGregor, DCR- Dam Safety, requesting information about the dam. (DEQ case history)
Apr 18 1994	Letter from Suzanne Bambacus, DEQ-OCEA, to Jay Gilliam explaining that DEQ has been working with NCAC-BSA since it was realized that the problem also exists whenever the lake is lowered during the winter. (DEQ case history)
Apr 18 1994	Site inspection by Ralph Bolgiano, DEQ-VRO: water in Little Calfpasture above the lake only slightly turbid, water discharging from the lake very turbid. (DEQ case history)
Apr 19 1994	Memo to file from Mar 12 1994 meeting with NCAC-BSA: Duncan McGregor, DCR-Dam Safety, stated that, while NCAC-BSA's O&M manual for the dam required the lake to be lowered every fall, there was no reason the manual could not be amended and the lake maintained at full pool as long as there were procedures for emergency and routine inspection. The subjects of the coffer dam and emergency spillway were discussed and NCAC-BSA stated they couldn't afford a cofferdam and Mr. McGregor believed an emergency spillway would be redundant and unnecessary. (DEQ case history)
Apr 21 1994	Complaint from Mr. Peyton Crom on turbid water in the Maury River. (DEQ case history)
Jul 14 1994	Letter from Donald Reinhardt, NCAC-BSA, to Suzanne Bambacus, DEQ-OECA, indicating that Dewberry and Davis were working on the problem and a letter would be prepared within the next three weeks with recommendations to solve the problem. (DEQ case history)

<p>Aug 11 1994</p>	<p>Letter from Donald Reinhardt, NCAC-BSA, to Suzanne Bambacus, DEQ-OECA, agreeing to an interim measure of not lowering the lake on a seasonal basis. NCAC-BSA reserved the right to lower the gates in the case of storm events, ice buildup, or any other event which may damage the gates and affect the ability to operate the spillway. (DEQ case history)</p>
<p>Aug 16 1994</p>	<p>Letter from Duncan McGregor, DCR-Dam Safety, to Donald Reinhardt, NCAC-BSA, regarding the dam safety requirements for Lake Merriweather: 1) a regular O&M certificate approved for the dam on May 20, 1992; 2) the capacity of the spillway without overtopping the embankment is 50% of the probable maximum flood (PMF) which exists only when the gates are down or open and is referred to as the spillway design flood (SDF); 3) the required SDF is 50% of the PMF for the dam which is a reduction from what would normally be required based on a study and recommendation from J. K. Timmons and Associates; 4) being able to lower the gates is essential in assuring the safety of the dam; 5) under the current O&M plan, the lake level is immaterial as long as the gates can be operated; 6) the gates must be inspected, including the subsurface valve; 7) all potential sources of damage to the gates must be identified and controlled. (DEQ case history)</p>
<p>Aug 16 1994</p>	<p>Letter from Jay Gilliam to Suzanne Bambacus, DEQ-OECA, asking for status of the case and monitoring completed by DEQ. (DEQ case history)</p>
<p>Aug 30 1994</p>	<p>Letter from Suzanne Bambacus, DEQ-OECA, to Jay Gilliam providing a status report and STORET data from the Little Calfpasture and Maury rivers. (DEQ case history)</p>
<p>Oct 24 1994</p>	<p>Meeting with NCAC-BSA to discuss possible DGIF involvement in the construction of an emergency spillway. (DEQ case history)</p>

May 1995	DEQ: benthic monitoring of Little Calfpasture below the dam suggests that no recovery will occur as long as the current practice of lowering the lake each winter is continued. (Memorandum DEQ May 19, 1995 – BF)
Jul 25 1995	Meeting with NCAC-BSA and their consultant to discuss different alternatives to address the problems with Lake Merriweather. Report presented. (DEQ case history)
Aug 11 1995	Memo from Geoffrey Cowan, Dewberry and Davis, regarding the Jul 25, 1995, meeting (DEQ case history)
Nov 3 1995	Letter from Jay Gilliam to Elizabeth Scott, DEQ-VRO, regarding sedimentation problem at Lake Merriweather. (DEQ case history)
Dec 13 1995	Letter from Roland Owens, DEQ-VRO, to Mike Hurlbert, NCAC-BSA, requesting a status report and a plan and schedule to control the sedimentation from Lake Merriweather. (DEQ case history)
Jan 13 1996	Letter from Alan Lambert, NCAC-BSA, to Roland Owens, DEQ-VRO, in response to Dec 13, 1995 letter: several options were being pursued, including a \$10 million fundraising campaign (part of which would be earmarked to repair the dam), working with other government agencies, installing a new trash boom, making a decision on which option presented by Dewberry and Davis would be pursued, and stating that a detailed plan of action should be available by Jul 20, 1996. (DEQ case history)
Jan 29, 1996	Phone conversation between Roland Owens, DEQ-VRO, and Alan Lambert, NCAC-BSA: discussed the situation and suggested an amended CO to address the problem. (DEQ case history)

Feb 5 1996	Letter from Duncan McGregor, DCR-Dam Safety, to Roland Owens, DEQ-VRO): No progress has been made on revising the O&M for the dam and greater concerns are raised due to the Jun 1995 flooding which pointed out the near impossibility of lowering the gates when faced with flooding which is not expected or predicted and gives greater importance to the need for additional spillway capacity or making radical changes to current operation procedures.(DEQ case history)
Feb 29 1996	Letter from Roland Owens, DEQ-VRO, to Alan Lambert, NCAC-BSA, transmitting a draft amended CO. (DEQ case history)
Apr 4 1996	Report from Michele Titman, DEQ-VRO: Little Calfpasture extremely turbid. (DEQ case history)
Apr 22 1996	Letter from Roland Owens, DEQ-VRO, to Alan Lambert, NCAC-BSA, transmitting copies of the last three benthic surveys completed on the Little Calfpasture River, all showing a severe impact due to Lake Merriweather. (DEQ case history)
May 3 1996	Letter from Alan Lambert, NCAC-BSA, to Roland Owens, DEQ-VRO, requesting the legal basis for wanting NCAC-BSA to enter into an amended CO. (DEQ case history)
May 14 1996	Letter from Roland Owens, DEQ-VRO, to Alan Lambert, NCAC-BSA, providing NCAC-BSA the legal basis for the request to enter into an amended CO and possible future NOVs. (DEQ case history)
May 21 1996	Letter from Alan Lambert, NCAC-BSA, to Roland Owens, DEQ-VRO, requesting the information DEQ used to determine NCAC-BSA had violated the state water quality standard. (DEQ case history)

May 22 1996	Complaint from Jay Gilliam regarding the turbidity in the Little Calfpasture and Maury rivers. (DEQ case history)
Jun 6 1996	DEQ: there is no improvement in the biological integrity of the Little Calfpasture downstream of the lake from 1993 through spring 1996. Chronic discharge of sediment with episodes of even heavier loading of fines during resuspension by storms is inhospitable to normal benthic assemblages. (Memorandum DEQ Jun 19, 1996 – background file)
Sep 1996	SWCB: Notice of Violation for a general water quality standard requiring all state water be maintained at such quality as will support aquatic life. (NOV No. 9 VAC 25-260-20)
Oct 1996	DEQ follow-up to Notice of Violation: when sediment on the lake banks is exposed and erodes into the lake and eventually into the Little Calfpasture during rain/snow events, damage results to the river and its aquatic life. This environmental damage cannot be permitted to continue. (Letter from DEQ to NCAC-BSA Oct 25, 1996 – BF)
Oct 1996	DEQ enforcement division: NCAC-BSA might not appreciate the gravity of this situation given that its record with DEQ-Valley Regional Office suggests a perplexing resistance to cooperating with DEQ to resolve critical issues, notwithstanding DEQ-VRO efforts to address them with alternative options. (Letter from DEQ enforcement to NCAC-BSA – BF)
1996	U.S. Congress appropriates \$6 million in the Water Resources Development Acts (WRDA) for upgrades on Goshen Dam.
Jan 1998	Lake lowered for 113 days. (“seasonal debris”)* (2010 TMDL, p 16)

1998	DGIF study: from Mar – May, turbidity below the dam measured 11 times showing statistically significant high levels. Conclusion: the degree of increased turbidity below the lake is directly tied to the operation of the dam. (2010 TMDL, p 62)
Apr 1998	SWCB: Amendment to the 1993 Consent Order with Appendix A requires NCAC-BSA not to lower the lake except in an emergency and to submit self-monitored logs of daily gate practice quarterly to DEQ. (Agreement issued to NCAC-BSA, signed April 6/April 17, 1998 – BF)
Oct 1998	DEQ: Little Calfpasture continues to be severely impaired below dam; the impairment is diminished further downstream, and it is evident into the Maury River. (Memorandum DEQ, 1/19/99 – BF)
Dec 1998	Staunton-Augusta Health Department submits a sewage disposal permit to address the wastewater disposal needs for the Goshen BS Reservation. Recommends Guest Camp Field appropriate for wastewater.(Lex/RC HD- BF)
Dec 1998	Because of the increased level of dialogue from DEQ, NCAC-BSA requests a permit for O'Brien & Gere Engineers to update the septic system for the Camp Olmsted dining hall which has been a problem for several years. (Lex/RC VHD – BF)
Apr 1999	DEQ response to USACE <i>1999 Environmental Assessment for Goshen Dam</i> : The environmental degradation in the receiving waters below the dam “forms the basis for the proposed modification of Goshen Dam; accordingly, if the two spillway crest gates remaining intact after modification of the dam are to be operated for lake drawdown, even if only under emergency situations, DEQ requests that the emergency criteria which would support such operation be clearly defined.” (Letter, Apr 6, 1999, from DEQ to USACE – DEQ file)

Apr 1999	O'Brien & Gere, Engineers, designed the sewage disposal system for Camp Olmstead Dining Hall. Permitted by VDH. Included grease interceptor, septic tank, underground recirculating sand filter, pump station, dosing field. (BF)
May 1999	USACE impact statement: If the Corps-proposed construction project is completed, the gates would no longer need to be drawn down in the fall and there would be a long-term improvement of aquatic life in the Little Calfpasture. (USACE, Final Environmental Assessment, Goshen Dam, p 11 – USACE DSE)
Aug 1999	DGIF: drought, no water over the dam, but water being discharged from lower valve is very poor in color with a lot of iron causing orange precipitate. (DGIF email to DEQ, 8/24/99 – BF)
Sep 1999	Lake lowered for 28 days. (Hurricane Dennis)* (2010 TMDL, p 16)
1993-99	DGIF: Benthic sampling in spring and fall by DEQ found significant impairment due to sedimentation in Little Calfpasture between Goshen Dam and its confluence with the Calfpasture. (DGIF: Little Calfpasture Turbidity Study, 11/30/2001 – DGIF file)
2000	DGIF's spot checks in March and July reveal elevated turbidity levels at the confluence of the Little Calfpasture with the Calfpasture (DGIF study 11/30/2001 – DGIF file)
Oct 2000	NCAC-BSA: reports to DEQ dam operation maintained in accordance with Consent Order, no lake lowering. (2010 TMDL, p 16)
2001-03	Dec 2001 – Feb 2003: No quarterly records submitted by NCAC-BSA. (2010 TMDL, p16)

Dec 2001	DGIF: <i>Little Calfpasture River Turbidity Study</i> plans monthly monitoring 11 sites for TSS, turbidity, and stream flow from Jan 2002 through Dec 2002. (11/30/01 – DGIF file)
Sep 2003	*Lake lowered for 3 days. (Hurricane Isabel)* (2010 TMDL, p 16)
Nov 2003	*Lake lowered for 2 days. (Storm event)* (2010 TMDL, p16)
Sep 2004	*Lake lowered 37 days (Hurricanes Francis, Ivan, and Jeanne)* (2010 TMDL, p 16)
Oct 2004	*Lake lowered 160 days (seasonal debris)* (2010 TMDL, p 16)
Aug 2005	DEQ: measurements show low dissolved oxygen (D/O), another stressor contributing to the benthic impairment of the Little Calfpasture below the dam. (8/1 – 8/5, 2010 TMDL, p 38)
Sep 2005	*Lake lowered 48 days (unknown)* (2010 TMDL, p 16)
Dec 2005	*Lake lowered 91 days (seasonal debris)* (2010 TMDL, p 16)
*****	*Records of dam operation obtained from NCAC-BSA. As reported in 2010 TMDL, records were incomplete from 12/1997 to 2/2003. Records since 2/2003 have primarily only included a summary of gate operations and not lake levels. Large gaps in records during this time were also noted. (2010 TMDL)

Jun 2006	DEQ meets with NCAC-BSA to reiterate the requirements of the Special Consent Order. NCAC-BSA agrees to comply but then continues the practice of lowering the lake level for “maintenance”. (2010 TMDL p. 15)
Aug 2006	NCAC-BSA expresses interest in updating latrines on the reservation. VDH outlines the process for updating.
Aug 2006	<p>USACE <i>Dam Safety Evaluation Report</i> submitted to DCR. Includes Hydrologic, Technical, and Environmental Evaluations. Recommends armoring the dam and operating only two spillway gates which “would eliminate the need to mechanically operate the spillway under emergency conditions [and would] eliminate the need for future lake drawdowns for dam safety purposes, thereby reducing the potential release of sediment.” (USACE, DSE, Environmental p11)</p> <p>USACE’s recommended plan is also simpler for NCAC-BSA to maintain since there would no longer be any raising or lowering of gates, especially in flood situations. (USACE, DCE, Environmental p. 12)</p> <p>Conclusion: There is an imperative water quality concern in the stream below Goshen Dam, as identified by VDEQ. Both the recreational opportunities and environmental issues need to be taken into account in addition to the dam safety issues at Goshen Dam.” (USACE DSE, Hydrology, Appendix 4, p 23)</p>
Aug 2006	NCAC-BSA requests permission from the Central Shenandoah Health district to install vault privies and drainfields after meeting regulations required (Lex/RC HD – BF)
Aug 2006	DEQ: Continued low D/O violating water quality standards (2010 TMDL p 38)

Sep 2006	*Lake lowered 184 days (seasonal debris)* (2010 TMDL, p 16)
Dec 2006	Memorandum from director of Civil Works, Dept. of the Army: cost/benefit economic analysis and approval of USACE's plan to repair Goshen Dam for a cost not to exceed \$6 million, as directed in WRDA 1996, section 507(3).
Dec 2006	USACE, Norfolk District, announces plan to repair Goshen Dam, initiating construction in FY 2008.
1999-2006	DEQ: conditions directly below the dam very poor, not likely to improve regardless of operation of dam. (2008 Integrated Report)
Jan 2007	41 Vault privies installed throughout reservation. (Lex/RC DH – BF)
Jan 2007	DEQ TMDL director: operational or design modification could mitigate impairment of Little Calfpasture in part, but nothing short of dam removal will probably completely eliminate the impairment. A TMDL will probably not do much good.
Jan 2007	DEQ biologist: Goshen dam is a recreational dam, not a flood control dam. It creates a shallow lake with a large watershed and actually increases the risk of flooding to upstream neighbors. By lowering the lake, NCAC-BSA exposes mudflats during offseason to keep the growth of aquatic weeds down. This mud washes over the dam in rain events.
Jan 2007	DEQ reminds NCAC-BSA that the CO does not allow extreme lowering of the lake for long periods of time to conduct debris management.

Feb 2007	DEQ <i>Little Calfpasture stressor report</i> : when not raining, turbidity consistently higher below the lake. Phytoplankton production within the lake also adds to the increased turbidity downstream; lowering of dam gates following storm events greatly increases downstream turbidity for 1 to 5 days (possibly up to 8 days). At more than 8 days conditions appear to clear and turbidity in lake outflow is only slightly higher than inflow.
Feb 2007	DEQ flow records: Largest recorded rainfall event since 1998 CO on the Calfpasture at Goshen was on 6/26/06, which is in the top 10 historic flows in the period of record since 1938 – 7.84 inches over a 4-day period. NCAC-BSA reports no lowering of gates during this event – simply a full pool on 3/15/06 with no documentation of gate lowering until end of camp season on 9/5/06. There appears to be a different standard for “safe” during the camp season versus after the camp season.
May 2007	Regional TMDL coordinator Robert Brent submits a review of <i>Amended Operation Procedures for Gated Spillway at Goshen Dam</i> . Gate operation protocol for lowering lake even 4 feet in a hurricane will impair downstream aquatic life. Without NCAC-BSA deleted log information gate operation, decisions left to judgment of dam tender which negates purpose of operation protocol. (p 2, #s 4 and 8)
Jun 2007	NCAC-BSA: portion of the funds required to start construction lost in fiscal 2007 to Katrina and Troy hurricane recovery.
Jun 2007	Meeting at scout reservation to address Operation Procedures for Gated Spillway of Goshen Dam. Representatives attending: DCR-DS, DEQ, NCAC-BSA, RCEM, Dewberry & Davis, McGuire Woods. Issues unresolved.

Aug 2007	Continued low dissolved oxygen measurements. DEQ visit on 8/22, finds foul- smelling and brownish-orange color of the water below the dam. Likely cause: opening of subsurface gate. (2010 TMDL, p 67)
Aug 2007	DEQ conducts a depth measurement of the lake. The maximum recorded depth is 20 feet behind the dam and an average of 6.68 feet. (2010 TMDL, 8/22/07, p 108)
Sep 2007	problems associated with long-term lowering of the lake level. NCAC-BSA again agrees to comply and DEQ assumes they have since then; however, local reports indicate otherwise. (See also, Paul Low's study below – Apr 2014 – covering 2000-2013 stream flow analysis – BF) DEQ monitoring, enforcement, and TMDL staff meet with NCAC-BSA officials again to discuss the environmental
Feb 2008	DEQ: report submitted on operational steps that might help to avoid low dissolved oxygen and/or discharges of solids.
Mar 2008	SWCB: In the Little Calfpasture) from 0.76 miles to 0.02 miles above its confluence with the Calfpasture River, aquatic life conditions are expected to gradually recover and meet the general aquatic life uses at 0.02 miles above its confluence with the Calfpasture River. (2010 TMDL, p 74) At 0.83 directly below dam to 0.76: dead zone. (p.74)
2009	Boy Scout Jamboree's prospect of moving to the Goshen Scout Reservation meets with local opposition. Southern Environmental Law Center cites sediment problem among several other inadequacies. (Letter from SELC to NCAC-BSA, May 15, 2009 – BF)
2009	Public meetings held by DEQ for comment on proposed TMDL: models included to address the problem of more sediment flowing into the lake than out. Unanswered question: Why is NCAC-BSA

	allowed control over the lake since the river is navigable, surface water – Little Calfpasture is state-owned and available for public use? (Public hearings Apr – Nov, 2009)
Mar 2009	NCAC-BSA questions DEQ's authority to regulate and require the scouts to take specific actions to prevent the release of waters containing low dissolved oxygen and that being prevented from releasing the water makes it too difficult to control the lake levels. DEQ's calculations do not bear out problems in maintaining the lake level. DCR indicates that there is no dam safety issues with DEQ's suggestion regarding gate regulation.
Mar 2009	DEQ: General Water Quality Standards apply to discharges from the dam that contravene those standards which can be documented.
Apr 2009	Regional TMDL Director Robert Brent: Three stressors result from the presence of Goshen Dam and cause impairment of Little Calfpasture. 1) lake changes organisms that make up the base of the food chain; 2) decrease in dissolved oxygen; 3) sediment released from lake fills up spaces between rocks and gravel in a clean stream and smothers aquatic life. (DEQ public hearing, 11/09)
May 2009	SELC conclusion in evaluating Goshen reservation for the NCAC-BSA Jamboree: "We think the NCAC-BSA, given its environmental ethic, would agree that certain unique, scenic, remote and relatively unaltered natural areas are not appropriate for large-scale use and development and, indeed, that such use can ruin those very qualities that make the area ecologically important and enjoyable for visitors. We firmly believe that Goshen Pass is such an area."
Jul 2009	At DEQ's request to address the D/O problem, NCAC-BSA's contractor, Bander Smith, installs an elbow and riser on the cold water release intake pipe so that the release comes from 3 feet higher in the lake's water column. (2010 TMDL, p 77)

Aug 2009	DEQ monitoring shows no D/O violations but will continue to monitor to see if trend continues (2010 TMDL, p 77)
Aug 4 2009	NCAC-BSA withdraws its interest in Goshen Scout Reservation as the permanent site for the National Scout Jamboree.
Sep 2009	Maury Service Authority requests NCAC-BSA to notify them when lowering the lake. (No response but NCAC-BSA reports lowering to RC emergency coordinator in case there are questions)
Oct 2009	DCR: NCAC-BSA has a conditional permit specifying that work must be done to make the dam comply with the regulations mainly for spillway capacity issues. That certificate expires May 31, 2010. The Alteration Permit to address the spillway issues expired in 2008 when work did not start.
Dec 2009	EPA: approves special standard – above – submitted by SWCB on 3/23/08. (2010 TMDL, p 74)
Jan 4 2010	Gate #5 failure releases approximately 10 feet of lake level, sending a constant stream of sediment into the Little Calfpasture.
Jan 19 2010	Dewberry & Davis: Gate broken in pieces. Repair prolonged because parts unavailable.
Jan 25 2010	Approximately 60 concerned citizens distributed and explained a written request to the Rockbridge County Board of Supervisors regarding the condition of Goshen Dam and asked that safety procedures and the need to keep the public informed, among a number of other questions and concerns be addressed.

Jan 2010	DEQ presents <i>TMDL to Address a Benthic Impairment in the Little Calfpasture River, Rockbridge County, Virginia</i> : changes in organisms, sediment and D/O problems caused by the yearly practice of lowering Lake Merriweather; possible models suggested for addressing the problems.
Feb 2010	Deva Borah, PhD, PE: review and evaluation of TMDL on Little Calfpasture found models, hydrologic parameters, flow data, sediment flux comparisons, and lake data inadequate for developing a TMDL.
Apr 2010	EPA approves DEQ <i>TMDL to Address a Benthic Impairment in the Little Calfpasture River, Rockbridge County, Virginia</i> . (Letter and Decision Rationale – EPA file)
Apr 2010	DCR certifies Dewberry & Davis' Emergency Preparedness plan for <i>Low (stet) Hazard Virginia Regulated Impounding Structure for Goshen Dam</i> .
Jun 2010	DEQ verifies examination and repair of gates and actuators of Goshen Dam.
Jul 2010	DEQ issues permit to USACE to permanently or temporarily impact up to two acres of nontidal wetlands or open water and up to 1,500 linear feet of nontidal stream bed to make repairs to Goshen Dam. (VWP General Permit #WP4-10-0905)
Sep 2010	NCAC-BSA: submits timeline for refurbishing actuators/motors to DEQ. Lake will need to be lowered during repairs from Oct 2, 2010 to Feb 10, 2011.
Sep 2010	\$5.7 million accumulated from WRDA 1996 appropriation for a concrete armor upgrade on Goshen Dam diverted to USACE-owned dams. NCAC-BSA has no other plans to do the work – organization has no money for the project.

Sep 3 2010	Documents filed with IRS by NCAC-BSA: revenues of \$11 million in 2008. (www.claimsjournal.com)
Sep 2010	Analysis of MSA database for treating water releases from Lake Merriweather are significant, in thousands of dollars annually. (A. Mcthenia, hydrogeologist)
Oct 2010	VMRC authorized USACE to install two 20-foot wide riprap toe protection structures, each extending 13 feet into the Little Calfpasture, immediately downstream of the Goshen Dam.
Jan 2011	Plans for modifications and repairs to the dam required by DCR are begun. NCAC-BSA raises \$4 million to construct a spillway and hires Froehling & Robertson Inc. (F&R), a Roanoke engineering firm, to design a spillway that meets the criteria required to meet DCR safety requirements. (F&R email correspondence with DCR – DCR file)
Apr 20 2011	DEQ: very muddy plume from Little Calfpasture reported.
May 5 2011	NCAC-BSA: all actuators have been replaced but one, which will be in place within the day.
Jul 2011	F&R submits 35% design submittal to NCAC-BSA for spillway construction.
Jul 2011	USACE submits 147 comments on F&R's 35% design.

Sep 2011	NCAC-BSA: “courtesy” email to DEQ that they are lowering the lake for safety-related maintenance and plan to return to full pool by Nov 1. DEQ requests overdue quarterly reports of the amount of flow over the dam.
Oct 2011	At the request of DCR, Schnabel Engineering submits a third-party review of F&R’s 35% design and recommends that the Incremental Damage Assessment (IDA) be performed for proposed rehabilitation alternatives by applying the same ratios to sub-watershed when analyzing fractions of the PMP for the IDA. Should SDF be less than appropriate, a higher SDF can be recommended.
Dec 2011	DCR accepts the general concept proposed for upgrading Goshen Dam with the understanding that the final general design will consist of: 1) a new open channel auxiliary spillway, 2) a concrete parapet wall the length of the top of the dam, 3) a new floating log boom.
Dec 2011	Two Incremental Damage Assessments listed for Goshen Dam: 1) USACE (1999) safe spillway flow 86,500 cfs, 2) Schnabel (2011) a safe flow of 89,000 cfs which DCR deems an appropriate SDF for this dam.
2012	Little Calfpasture below dam remains listed as impaired for D/O and sediment on state’s list. (DEQ 2008 Integrated Report – DEQ file)
Jan 2012	F&R reports potential 0.05 wetland impact from construction of an auxiliary spillway for Goshen Dam.
Jan 2012	USACE: appropriate analysis needed for environmental impact of the work to be done at Goshen Dam.

Feb 2012	USACE issues a pre-construction notification to install debris boom and that item is removed from F&S design plan.
Mar 2012	DEQ: for spillway project a VWP permit not required provided the Goshen Dam remediation is authorized by USACE under a regional permit or Nationwide Permit for which DEQ has provided Water Quality Certification.
Mar 2012	DCR: requests F&R provide calculations for the SDF through the gates and the proposed auxiliary spillway and also to provide printed responses to the 147 comments made by the USACE on the Goshen Dam project.
Mar 2012	USACE: notice that HQ has federal funds for Goshen and has asked these be used to design and construct a log boom in front of the existing spillway gates and to modify the existing spillway gates so that they are automatic instead of manually operated. NCAC-BSA would handle any permits needed for these projects.
Mar 2012	USACE: the Corps will no longer be responsible for any Goshen dam work – other than the boom and gate projects above. The Corps will also <i>not</i> be reviewing or approving F&R's construction plans.
Mar 2012	F&R: response to USACE's request for revisions to the company's wetland delineation and construction plans as discussed at the Mar 8, 2012 Jurisdiction Determination site meeting.
Mar 2012	NCAC-BSA reports loss of log book for the C.O. required quarterly report of lake level, precipitation, etc. for first quarter of 2012.

Apr 2012	F&R submits dam remediation project description to NCAC-BSA with supporting documentation for SDF requested by DCR.
Apr 2012	DCR issues a 2-year alteration permit for spillway construction by F&R.
Apr 2012	USACE solicits bids for demolition and removal of existing log boom and installation of a new debris boom.
May 2012	Neighbor upstream of Lake Merriweather expresses concern about the continual erosion and sloughing of banks into the creek on his property as a result of the water fluctuations of the lake.
May 2012	W&L law school interns submit paper to RACC considering the laws addressing dam failure.
May 2012	F&S: "DEQ has saddled the Boy Scouts with a consent order to never again open the bottom drain sluice gate or suffer a stiff financial penalty. This directly contradicts VA DCR Dam Safety regulation 4VAC50-20-280."
Jul 2012	F&S: submission of Lake Merriweather Dam Spillway Project Description to USACE.
Jul 2012	USACE: Memorandum to provide the project manager with a proposed scope of work for preparation of a simplified request for proposal for the Goshen Dam Debris Boom. Estimated cost: \$39,489.30.
Jul 2012	F&S: submission of land disturbing permit package to Rockbridge County. Approved.

Aug 2012	USACE issues NWP3 permit to F&R for construction of the spillway. The work will result in permanent and temporary impacts to Lake Merriweather and tributaries to Little Calfpasture.
Aug 2012	Lake lowered to 16 feet to prepare for construction of a spillway by Shirley Contracting/Faulconer Construction. (Alteration Permit – DCR file)
Aug 7 2012	Report to DGIF/DEQ from downstream residents of visibly poor, smelly water with lots of carp. Residents request a better notification system about what is happening.
Aug 8 2012	According to SWCB, DEQ has no option for requiring a release plan under the NWP3
Aug 8 2012	DEQ: investigation of water levels and increased turbidity reveals Calfpasture crystal clear and Little Calfpasture very turbid, about 2-3' visibility. The two waters remain distinct to about one river mile downstream of the confluence. The water being released from the lake appears greenish and moderately turbid which is likely due to planktonic algae from the lake.
Aug 10 2012	DEQ: Nothing was “received from the Scouts to indicate they were to begin construction of a spillway project.” Also, the second quarterly report on lake levels, precipitation, etc. required by the C.O. was destroyed in a fire. This follows the lost first quarterly report.
Aug 2012	DEQ requests that NCAC-BSA submit a plan as to how the Scouts intend to operate the dam once the construction is completed.
Aug 22 2012	NCAC-BSA dismisses resident complaint: DEQ and Rockbridge officers were contacted by NCAC-BSA and “it is our understanding that there were no issues and we were not asked to alter our process for lowering the lake. It is my understanding that this individual has a long history of complaints We will continue to be a good steward of our environment and good neighbor to our community.”
Aug 23 2012	DEQ reminds NCAC-BSA of the C.O. requirements and requests a modified plan for gate operations during the construction by September 30, 2012.
Oct 2012	NCAC-BSA sends report of lake/dam monitoring to DEQ.
Nov 2012	Memorandum of Agreement between USACE and NCAC-BSA: The Army will design and construct a debris boom and will evaluate, recommend design and repairs (if funding is available) for the existing spillway gates. In no event shall the total cost for the work exceed \$1,500,000 of federal funds. Upon exhaustion of repair funds the Army will have fulfilled any and all obligations pursuant to 507(3) of the WRDA of 1996.
Dec 2012	2012 Integrated Report: Little Calfpasture below the dam remains impaired.

Jan 31 2013	NCAC-BSA reports a jump in lake after 3.5 inches of rain from 16.5 feet to 25 feet. Three gates down. Reported to RC Emergency.
Apr 2013	F&R reports to DCR nearing completion: concrete cutback protection and the slope armor for the embankment installed and backfilled so the spillway channel is protected.
Apr 2013	F&R solicits contact information from downstream residents to include in the EAP.
May 2013	USACE asks DCR for procedures for lowering the lake now that the spillway construction has been completed. DCR's reply: "As long as they do not exceed 6 to 12 inches per day we approve the procedure." DEQ ... "will not be offering guidance for this procedure."
May 2013	DEQ requests NCAC-BSA submit a revised plan/procedure for lowering lake levels.
May 2013	USACE: "The Corps will not be doing an inspection or providing procedures, since we were not tasked to perform the work."
May 2013	RACC sends letter to F&R requesting an opportunity to make comments on the procedure plan for lowering the lake. (No response)
May 2013	USACE awarded the contract to Service Disabled Contracting Group for demolition and removal of existing log boom and to properly install a new debris boom and associated hardware which would not impede flow through the existing gated spillway. Cost: \$860,782.
May 2013	RACC phone call to F&R: Goshen Dam was not intended for flood control. Even so, it is designed to withstand a 100-year flood. Normally, water is allowed to flow in and out without any control. Water reaching 4 feet above normal pool would automatically be directed to the auxiliary spillway.
May 2013	RACC phone call to USACE: There is not enough money to automate the gates. A team of engineers will visit Goshen Dam in the fall to evaluate what's needed for operation, maintenance, and automation of the gates.
Jul 2013	USACE: some digital and some hard copy of modeling of H&H dam break studies for Goshen Dam available free of charge at the request of a locality.
Jul 2013	After reviewing the EAP plan, RACC sends letter to F&R with 11 unsolicited suggestions for clarifying the procedures. (No response)
Aug 4 2013	Residents downstream of the dam report to DEQ a significant, bold rise in the Maury River in the middle of the day with lots of carp and a noticeable rise in water temperature. No notice of a draw down from Rockbridge Emergency.
Aug 2013	DEQ: the basic gate protocol for Goshen Dam is basically defunct/out of date with the upgrades to the dam and the gates. The expected revised protocol will replace the protocol referenced in the C.O. 1998 amendment.

Sep 2013	F&R records for completion of auxiliary spillway and upgrades to Goshen Dam. (Record Report for Impounding Structures and Application for O&M certificate – DCR file)
Sept 2013	RACC sends a letter to F&R expressing concern that the EAP does not address the problems caused by lowering the lake during the non-camping months. (No response)
Sep 2013	Lake lowered for winter “maintenance” (RC emergency management office)
Nov 2013	The Nature Conservancy sells 0.43 non-tidal permanent wetland mitigation credits to NCAC-BSA. (Letter to Shirley Contracting – USACE file)
Nov 2013	NCAC-BSA total revenues – \$16,374,505; total expenses – \$12,080,323; net assets – \$38,490,953. (CitizenAudit.org – BF)
Nov 2013	USACE: the <i>Final Condition Assessment and Rehabilitation Prioritization Report on Goshen Dam/Lake Merriweather</i> submitted. LINK TO THIS
Jan 2014	F&R: DEQ has no authority in the operation and maintenance of the dam; the Corps is not issuing any report, the spillway project is complete, and the O&M has been filed with DCR – the regulatory body that does have authority with regards to Goshen Dam.
Jan 2014	NCAC-BSA to USACE & F&R: RACC is part of a local group that does not need access to any pending documents between USACE and NCAC-BSA.
Feb 2014	USACE: dredging sediment planned for the area behind Goshen Dam – plan area about 2,000 square feet with a total volume of about 140 cubic yards. Spoils to go upland on NCAC-BSA property.
Apr 2014	Invitation by email to NCAC-BSA by RACC to discuss the problems of water quality below the dam. (No response)
Apr 2014	Presentation at Geological Society of America 63rd annual meeting: Identifying Seasonal Drawdown Events of Lake Merriweather: Implications for Water Quality in the Little Calfpasture and Maury Rivers (2000-2013): 14 of the 38 identified drawdowns of the lake appear to represent the times when water is being drained from the lake. While these high turbidity events are only temporary, there remain persisting observed changes in the quality of benthic habitat in the Little Calfpasture.
Apr 2014	USACE: Scope of work and cost estimate submitted for maintenance dredging of Goshen Dam/Lake Merriweather.
May 2014	NCAC-BSA asks DEQ what new protocols are required. “We want to have a positive relationship with DEQ. We need to know that you have our back when our neighbors downstream become unreasonable with their requests and accusations that in most cases are unfounded and baseless as we have discussed in the past.”

May 2014	Corps reiterates that their only oversight of Lake Merriweather is protection of wetlands. The dam is not for flood control, recreation only. Engineering report for pre-construction visit unavailable. (USACE file)
Jun 2014	DCR: Operating plan and schedule for Goshen Dam: There are 10 mechanical gates that can adjust the pool elevation from a summer normal pool of 1369 and winter normal pool of 1359.5. During the summer season, the function of the gates is to maintain pool as close to 1369 as possible by partial or full opening to pass any storm water entering the gate.”
Jun 2014	RACC to DCR: What is the safety function of routinely lowering the gates in the winter? It appears this is separate from a test to make sure that the gates are operating properly.
Jun 2014	DCR to RACC via F&R: “ Outside of the scouting season, since the lake is not used there is no reason to leave the pool at the higher elevation and it makes perfect sense to reduce the pool level. Lowering the pool provides the dam with additional protection for storm storage particularly prior to charging the auxiliary spillway and also serves to lessen the depth and duration of flow in the auxiliary spillway should the storm be large enough to charge it anyway. The fall months immediately after the scouting season are the typical hurricane months and prior to the project the dam had already experienced a storm that very likely could have overtopped the dam if the pool had not been lowered so I completely agree with the NCAC-BSA practices. The fact that the auxiliary spillway has been built is no reason to leave the pool elevated when not needed. Simply put, lowering the pool when not needed is good dam safety practice and it is the responsible action of the dam owner to do so.”
Aug 2014	DCR: DEQ reports that the 1998 Consent Order is no longer in effect. Ambient monitoring bi-monthly and benthic monitoring spring and fall is the only water quality protocol in place. NCAC-BSA informs DEQ of their plans for maintaining the lake; no plan for sediment control included.
Aug 2014	RACC representative meeting with DEQ representatives: discussion included sediment dumping not a permitting practice; NCAC-BSA has never acknowledged the problem of dumping sediment into the Little Calfpasture and has never responded to the 2010 TMDL study of the river.
Sep 2014	Lake lowered for winter maintenance. (RC emergency management)
Sep 2014	NCAC-BSA informed of Termination of Special Consent Order (1993) and Amendment to Special Consent Order (1998)
Oct 2014	Request by letter from RACC to NCAC-BSA to discuss water quality problems below Goshen Dam. (No response as of Jan 2015 – BF)
Oct 2014	RACC’s emailed questions to VaDEQ and EPA TMDL coordinators about operation & maintenance of Goshen dam: recommended USACE as the contact agency.

Nov 2014	DCR: certificate approved entitling NCAC-BSA to operate and maintain Goshen dam for six years pursuant to the Dam Safety Act (Section 10.1-604 et seq, Code of Virginia). (DCR file)
Nov 2014	Trout Unlimited monthly ambient monitoring of Little Calfpasture began at confluence with Calfpasture. Width 32 ft; water temp 42.6 degrees, air 63.3; turbidity 50 cm/11NTU; conductivity 200.5 (CitSci.org)
Dec 2014	DCR: NCAC-BSA operating and maintenance manual for Goshen Dam not required. (Email DCR)
Dec 2014	Little Calfpasture below dam listed impaired for E.coli and benthic -macroinvertebrate bioassessments.(DEQ integrated report 2014) [There are no Commonwealth TMDL standards for D/O or sediment, even though unsafe levels of these criteria are scientifically recognized. EPA website: water quality standards.]
Jan 2015	Little Calfpasture: 33 ft wide; water temp 39 degrees, air 44; turbidity 63 cm/8 NTU; conductivity 156.7 (CitSci.org)
Jan 2015	RACC sends a letter to EPA, Region 3, to request enforcement of EPA-approved 2010 TMDL for Little Calfpasture River.
Jan 2015	USACE: removal of 500 total cubic yards of debris to restore the stream bed to its original conditions after the dam was built, in addition to the 200 cy to remove debris impacting gate operations.
Feb 2015	Little Calfpasture: 36 ft wide; water temp 37.9 degrees, air 52; turbidity 54 cm/9.8 NTU; conductivity 137.3 (CitSci.org)
Feb 2015	USACE: RFP issued for sediment and debris removal at Goshen Dam/Lake Merriweather. Disposal of large debris to be coordinated with NCAC-BSA. Sediment management instructions included. Post-verification by contractor shall consist of a bathymetric survey or physical soundings to verify that the specified minimum geometry has been achieved.
Mar 2015	Little Calfpasture: 53.5 ft wide; water temp 47.8 degrees, air 58; turbidity 33 cm/ 21NTU; conductivity 104.7 (CitSci.org)
Mar 2015	Report to DEQ from recreational users of the Maury River for 15 years: "Over this past weekend I noticed that the Little Calfpasture seemed much murkier than usual as it joined the Calfpasture, especially given our recent rain history. I am quite familiar with what it normally looks like as the two flows combine. Especially compelling was how turbid the entire Maury was a few miles downstream. Under normal circumstances the river is no longer crystal clear but we can still see the underwater rocks. On Saturday we could not."
Apr 2015	After inquiry about status, RACC letter to EPA reported lost. Letter and packet resent. (Telephone call: sws)

Apr 2015	NCAC-BSA begins refilling the lake. Little Calfpasture flow very slow and muddy; width diminishes from 53.5 feet across to 39 feet; water temp 63 degrees, air 76; turbidity 35cm/19NTU; conductivity 117.9 (CitSci.org)
Apr 2015	Canoers requested benthic monitoring and turbidity and sediment deposit measurements be performed on the mouth of Little Calfpasture into the Maury. (DEQ – BF)
May 2015	USACE: Sediment and Debris Removal for Goshen Dam/Lake Merriweather awarded on May 6 with project to be completed May 30; work postponed to September 21, 2015, so as not to interfere with camp season.
May 2015	Little Calfpasture: 33 feet width, water temp 76.2 degrees, air 80; turbidity 96 cm/ 5NTU; very low flow; conductivity 117.2. (CitSci.org)
Jun 2015	EPA, Region 3, declines to review RACC request, suggests contacting Va TMDL coordinator, who had already been contacted (see Oct 2014 above); and DCR dam safety engineer, who had already been contacted (see Nov and Dec 2014 above).
Jun 2015	Little Calfpasture: 26 feet wide; air temp 81 degrees, water temp 83.1 degrees; turbidity 100 cm/4 NTU; conductivity 155.9 (CitSci.org)
Jul 2015	USACE: Precon meeting for dredging project at Goshen Dam.
Jul 2015	Little Calfpasture: 31 feet wide after rain, air temp 78 degrees, water temp 83 degrees; turbidity 78cm/ 6NTU; conductivity 159.5 (CitSci.org)
Aug 2015	NBSWCD sends letter to DEQ Director requesting that the 2010 TMDL for Little Calfpasture be implemented.
Aug 2015	Little Calfpasture: 20.5 feet wide, air temp 78 degrees, water temp 81.1 degrees; turbidity 89 cm/5NTU; conductivity 174.6 (CitSci.org)
Aug 2015	NCAC-BSA book value of all assets at end of 2014: \$53,254,040. (CitizenAudit.org – BF)
Sep 2015	DEQ Director replies that an IP for the Little Calfpasture River will be initiated for the summer of 2016. (BF)
Sep 2015	NCAC-BSA reported lowering the lake to RC emergency who let MSA know, but the lowering is not reported on the emergency alert system to the 1500 people requesting to be informed. RACC requests again that NCAC-BSA report directly to MSA and to those registered on the emergency alert system for dams. Emergency coordinator agreed and apologized for the mistake. (BF)
Sep 2015	Little Calfpasture: 18 ft wide; water temp 74.7 degrees, air 72; turbidity 120 cm/0 NTU; conductivity 178.15. Scouts had built a beaver-style “dam” directly above the monitoring site. (CitSci.org)
Sep 2015	USACE: weather conditions force start on the sediment and debris project be moved to Oct 13, 2015

Sep 2015	VDH staff notified DEQ staff of an existing sewage lagoon at the Goshen Scout Reservation. VDH did not have any record of any permits for the lagoon.
Oct 2015	VDH issues permit to NCAC-BSA to construct a PE Sewage Disposal System.
Oct 2015	DEQ-VRO inspected the lagoon (10/15) and found no active discharge during the investigation. Original 1966 drawings provided by NCAC-BSA indicate that the lagoon was designed and constructed with an outlet structure to receive discharge flow and direct it to a chlorine contact tank. From there, effluent was designed to flow to V-notch weir leading to a 4-inch line with an outfall to the Calfpasture River. At the time of the inspection, no chlorine supply was present. Trees and brush were growing on the berm of the lagoon and animal damage to the berm was noted.
Oct 2015	Little Calfpasture: 40 ft wide; water temp 62.1 degrees, air 69; turbidity 35cm/19 NTU; conductivity 192.5 (CitSci.org)
Oct 2015	On 10/25, NCAC-BSA notified DEQ that a discharge was occurring from the sewage lagoon. On 10/27, DEQ issued a NOV No. 15-10-RO-004 to NCAC-BSA for discharging sewage into state waters without a permit.
Oct 2015	Dredging of Lake Merriweather by Eastern Construction & Excavation, Inc. completed.
Nov 2015	DEQ staff met with NCAC-BSA representatives and requested a lagoon closure plan and schedule for closure, in addition to a schedule for when a new septic system would be operational.
Nov 2015	USACE: Total cost of sediment and debris removal project – \$187,096.
Nov 2015	Little Calfpasture: 32 ft wide; water temp 42.3 degrees, air 50; turbidity 48 cm/12 NTU; conductivity 143.3 (CitSci.org)
Dec 2015	Request from NCAC-BSA to expand gray water system at Olmstead Dining Hall granted by health department. Current septic system is adequate for the increase of persons from 400-500 a day. (Lex/RC DH – BF)
Jan 2016	RACC: letter to Tom Smith, Virginia Natural Preserves Program Director, requesting assistance in restoring water quality in the Pass (BF)
Jan 2016	Reply from Director Smith: trails rehabilitated, invasive plant inventory a priority, no recognition of water quality. (BF)
Feb 2016	VDH records for self-inspection of the wells at the six camps on the reservation (2014) pass except for bacterial problems in August, which were successfully treated. (BF)
Feb 2016	RACC: follow-up letter to Director Smith requesting specific information on plans for addressing impairment of Maury River in Goshen Pass (BF)
Feb 2016	DEQ: The stated VSCI score of 20.5 for the Little Calfpasture below the dam means that it can't be "dead" but that the benthic habitat has been changed and there may not be as many

	macroinvertebrates directly downstream of the dam as there will be with the addition of three-quarters of a mile of stream reach. The recovery stretch allows the habitat to recover, allows the aquatic population to recover, and water quality standards still have to be met on the Little Calfpasture before it flows into the Maury River.”
Feb 2016	NBSWCD requests that DEQ pursue a new TMDL on the L. Calf.
Mar 2016	Letter from William Hazel, MD, Virginia Secretary of Health & Human Services, replying on behalf of Director Smith about the problem of E.coli, indicates that VDH intervenes in reported cases of waterborne illnesses and that DEQ is in charge of water quality. [References made to VDH website did not prove helpful for restoring water quality.] (BF)
Mar 2016	RACC: follow-up letter to Dr. Hazel updating his information on SWPOZ in RC and questioning the value of the VDH information online for the Goshen impairment. (BF)
Apr 2016	NCAC-BSA submitted to DEQ an application for closure plan approval proposing to decant the approximated 812,515 gallons of liquid from the lagoon into either an unnamed tributary to the Little Calfpasture River or an unnamed tributary to the Calfpasture River.
Apr 2016	RACC watershed committee: citizen monitoring request sent to DEQ for benthic monitoring of the Little Calfpasture. (BF)
Apr 2016	Closure plan for waste lagoon (camp sewage pond) approved by DEQ/VDH. (BF)
May 2016	FOIA request sent to DEQ for NCAC-BSA files. (BF)
May 2016	DCR: NCAC-BSA is required to open the lower emergency drain once a year to make sure it works, but never for an extended period of time. Since the road over the emergency spillway is grass lined, it would require repair after usage; the agency has no authority over water levels but there is no real control of water going over the emergency spillway.
May 2016	VDH issued an operating permit to NCAC-BSA for a new septic system under Permit #HDID:181-15-0109.
Jun 2016	TMDL Little Calfpasture organizational meeting, DEQ, VaTech, NBSWCD. (BF)
Jul 2016	RACC watershed committee sends FOIA request to USACE for information on Corps recommendations, studies, emails in 2013, 2014, 2015 about Goshen Dam. (BF)
Jul 2016	DEQ advises NCAC-BSA that in order to discharge wastewater from the lagoon as proposed in the closure plan, a VPDES individual permit must be issued for the discharge.
Aug 2 2016	Public meeting on L.Calf TMDL held at Goshen Firehouse was well attended. (BF)
Sep 2016	NCAC-BSA required to pay a \$26,000 civil charge in settlement of the violations connected with the sewage lagoon discharge and to prevent all discharges of sewage from the lagoon until issued a VPDES permit, permanently close the sewage lagoon, and submit an updated application for closure

	plan approval that includes schedule for closure. Upon approval by DEQ, the Closure Plan and schedule becomes part of this order, and enforceable under the terms of it.
Sep 20 2016	TMDL Lake Management Working Group meeting: water quality trends and recent changes in the lake, current management, and potential management strategies, pinpointing the sediment sources were part of the discussion.
Sep 27 2016	TMDL Little Calfpasture Agricultural Working Group meeting: discussion included problems from the farming at the Augusta County Correctional Facility in Craigsville, illegal dumping above the lake, various BMP practices that could be applicable, and timeline for implementation.
Oct 2016	DCR: refuses to attend TMDL meetings because it might cause people to think the agency has regulatory authority over pollution issues and it does not. Saving people's lives is the main and primary goal of the Dam Safety regulations.
Oct 25 2016	TMDL Little Calfpasture Lake Management Working Group: discussion included efforts to clean up the illegal dump, VDACS staff working with the VA Cooperative Extension on complaints against the Augusta County Correctional Center, a presentation by the VaTech biological group on potential BMPs and strategies to reduce sediment coming out of the lake, NCAC-BSA's reliance on guidance from DCR for day-to-day operation of the dam, and the function of the emergency spillway.
Oct 2016	Question raised by VaTech team about USACE's dredging cost in 2015 project: Why was the dredging cost for a cubic yard \$935.48, when the annual average USACE cubic yard cost in 2015, \$23.64?
Nov 1 2016	TMDL Little Calfpasture Agricultural Working Group: discussion included ways to help with livestock exclusion in the Augusta County Correctional Center; livestock exclusion, streamside buffers, and streambank stabilization as three most important practices; funding available; a timeline for implementation; and citizen monitoring with water quality updates.
Dec 2016	Emergency table-top exercise for a gate failure of Goshen Dam performed by Rockbridge emergency and NCAC-BSA
Apr 2017	Refilling lake begun in preparation for camping season
Apr 11 2017	TMDL Steering Committee met to approve draft: request for no drawdown scenario to be included.
May 18 2017	Public meeting for TMDL draft implementation plan at Goshen firehouse
June 2017	Comment period on TMDL draft completed and submitted to EPA by DEQ
Oct 2017	NCAC-BSA drawdown of lake
Nov 2017	Meeting of partners working on TMDL. Included: NBSWCD, Rockbridge County, RACC, Augusta Correctional Center, Virginia Tech Extension. Also, a NCAC-BSA representative by phone.

Nov 2017	Enforcement action for unpermitted discharge from sewage system from the Goshen Reservation completed satisfactorily.
Dec 2017	EPA approval of draft received and partners meet to discuss funding needs for TMDL implementation.
Feb 2018	NCAC-BSA declined to participate in funding request for TMDL which made it impossible to proceed with the implementation plan.
Feb 2018	RACC inquiry to DCR about PMP and PE annual report. DCR reports study is underway.
Mar 2018	NBSWCSD board agrees to contact the SWCB about what recommendations it would have to address the sedimentation and safety problems.
Apr 2018	Subsequently, central office of DEQ suggests that a first step would be to contact the Secretary of Natural Resources with copies to the three agencies he oversees.
Apr 2018	NCAC-BSA begins filling the lake for summer camp preparation. Obvious plume of sediment still moving from the river downstream to the Pass.
Apr 2018	DGIF entered into a lease agreement with NCAC-BSA to allow access to hunters and fisherman on 2700 acres of the Reservation. A PALS permit \$51, depending on the activity desired, can be purchased through DGIF and proceeds will go toward maintaining the lease agreement.
May 2018	PMP certification for Goshen Dam reported to DCR and NCAC-BSA by F&R (effective March 23, 2016). No annual PE report. No update of contact information in EAP.
May 2018	NBSWCD sends request to the Office of Natural Resources for advice on what local government and residents can do to help protect water quality in Goshen Pass and protect residents from a dam failure.
August 2018	Information about the past history of Goshen Dam/Lake Merriweather was sent to the Secretary of Natural Resources.
April 2019	NBSWCD requests Significant Lake status for Lake Merriweather. Two-year process. Need to follow up.
June 2019	Secretary Strickland visits Goshen Pass with 5 members and staff of NBSWCD and Rockbridge administrator
June 2019	NCAC-BSA agrees to participate in Implementation Plan for 2018 TMDL of Little Calfpasture
August 2019	DEQ measurement of lake depth
2020	Rockbridge County applies for and receives DEQ's 319(h) funding for implementation of Little Calfpasture TMDL
2020 – 21	NCAC-BSA fills lake for summer camping, and releases water after camping following the BMPs suggested in the TMD

2021	JMU installs flow and depth monitors in Lake Merriweather
2022	DCR: conditional permit issued for O&M plan for NCAC-BSA
2023	Four-part article on safety of Goshen Dam published in <i>The News-Gazette</i>
Apr 2023	Usual filling of Lake Merriweather begins
May 2023	JMU's Robert Brent.s <i>Final Report: Turbidity and Flow Monitoring</i> LINK THIS
May 2023	850 acres on the Reservation offered for sale for \$1,690,000
Aug 4 2023	With little notice, NCAC-BSA begins lowering lake and continues to completely drain the lake over the next 3 weeks. Polluting the Maury River at least to Glasgow.
Sept 2023	Maury River Alliance (MRA), a group of concerned residents, forms to address the problems caused by the algae & sediment and lowering the river so soon and so completely.

ABBREVIATIONS:

BF – Background file in Rockbridge Conservation office

NCAC-BSA – National Capital Area Council of the Boy Scouts of America

CO – Consent Order

DEQ – Virginia Department of Environmental Quality

DCR – Virginia Department of Conservation & Recreation

DGIF – Virginia Department of Game and Inland Fisheries

D/O – Dissolved Oxygen

DWR – Department of Wildlife Resources

EPA – U.S. Environmental Protection Agency

F&R – Froehling & Robertson Inc., Engineering

IDA – Incremental Damage Analysis

IP – Implementation Plan

Lex/RC HD – Lexington-Rockbridge County Health Department

MSA – Maury Service Authority

NBSWCD – Natural Bridge Soil & Water Conservation District

NCAC-BSA – National Capital Area Council – Boy Scouts of America

NOV – Notice of Violation

NWP – Nation-wide Permit

O&M – Operations & Maintenance

PALS – Public Access Lands for Sportsmen

PE – Professional Engineer

PMP – probable maximum precipitation

RACC – Rockbridge Area Conservation Council

RC – Rockbridge County

SDF – Spillway Design Flood

SWCB – (Virginia) State Water Control Board

TMDL – Total Maximum Daily Load

TU – Trout Unlimited

USACE – U.S. Army Corps of Engineers

VDACS – Virginia Department of Agriculture and Consumer Services

VDH – Virginia Department of Health

VMRC – Virginia Marine Resources Commission

VWP – Virginia Water Protection

WMA – Wildlife Management Area

WRDA – Water Resources Development Act

SOURCES

Sources not noted after entry are located in NCAC-BSA file box in the Rockbridge Conservation office

2010 TMDL to Address a Benthic Impairment in the Little Calfpasture River, Rockbridge, Virginia

USACE 1999 Environmental Assessment, Goshen Dam, Lake Merriweather, Rockbridge County, Virginia (USACE 1999 EA)

USACE 2006 Dam Safety Evaluation Report, including Hydrologic, Technical, and Environmental Evaluations (USACE 2006 DSE)

USACE 2013 Condition Assessment and Rehabilitation Prioritization Report, Goshen Dam, Lake Merriweather (USACE 2013 CA)

Virginia 2008 305(b)/303(d) Integrated Report (2008 Integrated Report)

Virginia DEQ's *Water Quality Assessment Guidance* (WQ Assessment)

Virginia DEQ's 2014 & 2016 305(b)/303(d) Integrated Reports (2014 Integrated Report) (2016 Integrated Report)

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[LINK TO THIS](#)

USACE: the *Final Condition Assessment and Rehabilitation Prioritization Report on Goshen Dam/Lake Merriweather* submitted. November 2013

Assessment:

- 4 gates not-operable, 3 gates operate with difficulty, 3 gates operable
- 50-year-old electrical and control systems in poor condition
- the 3 operable gates use a three-stage process which, with failure at any stage, renders the gates inoperable
- significant amount of debris needs to be removed by dredging to ensure that gates can be lowered properly
- lower 10-inch diameter cold water discharge line plug valve is severely corroded and needs to be replaced.

Recommendations: Short-term –

- ▶ dredging
- ▶ new electrical and local controls for 3 best gates
- ▶ new automatic control system and telemetry to control the 3 best gates
- ▶ total cost: \$260,000

OR, secondary

- ▶ dredging
- ▶ refurbish three marginal gates, including replacement of bent stems
- ▶ new electrical & local controls for the 3 best gates & 3 refurbished gate
- ▶ new automatic control system and to control 3 best & 3 refurbished gates
- ▶ total cost: \$520,000

Long-term –

- ▶ replace gates and associated control system equipment
- ▶ total cost: \$1.9 million

OR, secondary

- ▶ rehabilitate existing gates
- ▶ total cost: \$820,000

LINK THIS May 2023

JMU's Robert Brent's ***Final Report: Turbidity and Flow Monitoring***

in Lake Merriweather

- Measured sediment loads from Lake Merriweather were comparable to modeled loads during TMDL development. The annual sediment load measured in 2022/23 was within 8.9% of the average modeled load for existing conditions.
- Sediment movement into and out of the lake was confirmed by upstream and downstream monitoring. The modeled pattern of high but short-lived sediment peaks into the lake and lower, longer-lasting sediment discharges downstream was confirmed through monitoring.

- Monitoring confirmed increased sediment loads during periods when gates were lowered. Wintertime sediment loads were 6.7 times higher than summertime loads when the lake was at full pool.

DEQ's suggested modification in 2009 is continuing to function properly and provide downstream aquatic life with healthy dissolved oxygen conditions.

Annual Downstream Sediment Loads Continue to Exceed Ecologically Healthy Limits

Long-term Planning: The lake management plan should also consider long-term planning for the lake. This could include a plan for addressing progressive lake infill with sediment through a long-term dredging program. The plan could also address aging equipment and infrastructure with an equipment and dam infrastructure upgrade and replacement program. Lastly, a long-term plan could even address end-of-life scenarios for the lake and the dam.