

**Spring Run
1966-2008
Jerry Burke's Recollections**

Spring Run, with a mile of privately owned Fly Fishing, Catch & Release water, accessible by free permit since the early 1960s, was recognized as one of West Virginia's best streams for wild rainbow trout. Since about 2001 the fishery has been in decline. Ongoing communication between landowners, WVDNR, WVDEP, fishermen and others has not led to a solution. Electro-shocking conducted 4/24/08 by WVDNR's Mike Shingleton, Jim Hedrick and Tom Oldham; observed by SR fishermen, Bob Allen, Tim Aspy, Jerry Burke and Pat Docherty, and Spring Run Monitoring Program leaders, Carla Hardy, WVCA, Josh Hardy, WVDA and Neil Gilles, Cacapon Institute, provides a good picture, a "baseline", of the current trout population and size composition in the C&R water. It is evident from observation during E/S that both size and number of trout in C&R is substantially less than three years ago, 5/23/05, when E/S showed trout size much below that of SR's former 40+ years. Jim Hedrick will organize and report the E/S findings.

With this information available, now seems an appropriate time to summarize from 42 years experience at Spring Run. Your input will be helpful as this document is refined and we strive to bring the SR fishery back to its unique and exceptional quality.

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Research

How Can the Spring Run Rainbow Trout Fishery be Restored to its Former Glory?

Background

Burke first fished SR in July 1966, and continued a 13 year relationship with Harrison Shobe, former owner, who began the Fly Fishing, C&R project in the early 1960s. Burke, along with LaVerne Kamps, Ron Laski and wives, Janet, MaryLou and Margaret bought the property from Shobe's widow in 1980 and continued the FF, C&R project. An interior property, Stream Section 5, was acquired in 2006. The C&R water is arbitrarily divided into ten sections, 0-9, bottom to top. Measurement of SR thru its meanders shows very close to one mile of stream in the C&R section. Burke and wife moved to Petersburg in June 1994 to be closely associated with SR. Burke has spent extensive time in and around SR since mid-1994.

During 42 years fishing SR, beginning July 16, 1966 to April 22, 2008, Burke's journal records every day fished and other observations year around. The C&R recorded for July 16 and 17, 1966 is given here to illustrate the trout population in SR at that date. "Fished 1 1/2 hours the evening of July 16, catching a 12 3/4" brook trout. For July 17 there were rainbows: 21 1/4" 4# 6oz; 19" 3# 8oz; 18", 2# 14oz; 5 rainbows 12-13"; 7 brooks 9-12 3/4". Fishing is recorded for 1854 days with 23,377 trout C&R. There are pictures of fish, habitat before and after restoration from flood damage, and people. Over 99% of fish C&R are rainbow trout. When "trout" or "fish" is used here, it means rainbow trout.

Burke has logged over 3500 hours in-stream work, much of this time with volunteers and sharing their SR observations; heard and received written observations from many fisherman over many years; talked with Harrison Shobe about SR over a 13 year period, 1966-1979; interviewed four other elderly local men familiar with SR prior to the SR trout hatchery opening in 1952; communicated with fisheries and benthic professionals, including Ray White, Steve Hiner, Charlie Heartwell, Don Phares, Tim Craddock, Kenneth Semmens, and others: read Harrison Shobe's SR notes for 9/67-9/73, and Shobe's Conservation Officer notes from 1946-1963. Three magazine articles written in Shobe's era came to Burke's attention. More recent SR articles are: Tom Hencke, Grant County Press, Jan. 2000; Mike Sawyers, Cumberland Times News Aug./2000; Carla Funkhouser, WV Water Net, Fall 2000; Jim Clay, an eastern VA newspaper, Summer 2000.

Electro-shocking

4/24/08 (Burke memory): triple-pass E/ S thru 110 meter stream Sec 4-in front of camp: 39 Rbw captured and measured. Biggest, one fish ~12". Most fish less than 8-9":
1 sculpin.

Single pass E/S thru Sec 1-9, covering all C&R water except Sec.0, most downstream reach. Captured and measured all fish ~12 and above. Few fish met capture criterion. Fish observed est. as 6" +/- . Largest Rbw (2) ~16", Sec. 9 and Sec 1. 2 Brook above Sec 5. 2 Brown, Sec 2, 20.5" and ~10".

5/23/05(Hedrick report): triple pass E/S thru same section as 4/23/08 All fish captured, measured and weighed, 125 Rbw, largest ~14"; 5 Brown largest~14.75"; 1 Brook ~10.25"; 4 sculpin

5/23/05(Burke memory) Quick single-pass E/S thru Sec. 4, upstream of triple-pass revealed several fish, incl 18" brown in first pool of Sec 5.

9/1/05(Burke memory) triple pass E/S thru 600 meters, beginning about 75 yards above mouth of SR and extending upstream. Fairly high number of small Rbw, couple brook, many sculpin, some "dace". Jim Hedrick has data.

5/21/02(Burke field notes) E/S by DNR, Jerry Lewis as demo for kids program. Quick single pass thru ~2/3 of Sec 4 reach E/S by Hedrick on 5/23/05 and 4/23/08. ~15, 3-9" and 1 ~13" Rbw observed.

5/99(Burke field notes) E/S by DNR, J.Staggs and R.Pownell Sec. 4 in front of camp as demo for kids program. Then single pass E/S at selected pools Sec.1 to Sec. 9.

- all trout were rainbow
- size increased going upstream
- size ranged from ~2.5" for a few fish in Sec 1 to one 20" fish in top pool, Sec 9.
- best fish in front of camp, Sec 4 , 15"&16"; both slender
- best fish upper Sec. 4. 16"
- best fish downstream Sec 2. ~17" slender male from dark pool
- best fish in big pine pool, Sec 7 , 18" male
- best fish overall was good bodied 20" from top pool, Sec 9.
- generally several fish seen in every pool
- most fish/pool: Sec 4, hemlock limb pool; Sec 7 big pine pool~15 fish; Sec 9 top pool ~15 fish
- 4 or more large (3~6", 1~8") sculpin; 3 in Sec 1.

3/8/81 (R.Patterson communication to Burke) E/S by Don Phares, DNR, accompanied by Jerry Bremer, USFS and Robert Patterson. Sec. 4. "E/ S of two pools and one riffle resulted in fifteen fish, 4-17". Three fish were over 15". Heavy population in cabin pool. No 20+" fish were found."

Physical Habitat-Spring Run flows from "Big Spring at Masonville" as named in "Principal Springs of West Virginia",1948; elevation 1400'; discharge Aug-Dec. 1945 averaged 4660gals/min (influenced by unusually high Sept.discharge of 40,000 gals/min); minimum discharge 3140gals/min; temp 53F. Maximum summer temperature in the middle of C&R is 57-59F. Winter temperature may drop to upper 40sF. pH measured on numerous occasions is ~8-8.5. Alkalinity was measured @127 by E.Nester,

7/30/03. Elevation at downstream end of Sec 5 is 1073'. SR flows ~2 ¼ miles from the spring to confluence with S. Mill Ck. There are no tributaries. C&R water begins ~1/4 mile above confluence extending upstream ~1 mile. State route 9/2 closely parallels SR.

DNR's Spring Run Trout Hatchery, opened in 1952, draws water directly from the spring thru a pipe. At low discharge nearly all of the spring's water passes thru the hatchery, re: Mike Shingleton, Nov. 2007. DNR owns the spring and surrounding land.

In the 1970s the State of West Virginia allowed a local public service district to draw water directly from the spring to serve a large area, alarming SR fishermen, who feared dewatering of SR. The WV Council of Trout Unlimited, led by Ernest Nester sued to protect SR: Trout Magazine, Spring 1978. The spring has not become a public water source for a variety of reasons. However, some distribution lines still exist. A number of residential dwellings and chicken producers continue to receive water from the spring, based on an agreement reached when the trout hatchery was built.

Flooding damaged SR's physical habitat in Nov. 1985 and Jan., Aug. and Sept., 1996 and to a lesser extent in Sept. 2003. Extensive habitat structure restoration, stream bank protection and tree planting have been done with help from numerous fishermen volunteers. After 1996 flooding, "Friends of Spring Runs Wild Trout", was formed and received grants from the WV Stream Partners Program and Canaan Valley Institute to restore habitat. Primary references guiding habitat restoration are "Stream Habitat Improvement Handbook", by M. Seehorn and "Trout Stream Therapy", by R. Hunt. Numerous other information sources have been consulted. Work is authorized by US Army Corps of Engineers and West Virginia DNR permits, first obtained in June, 1986 and maintained up-to-date.

Flooding, while devastating physical habitat which took substantial work to restore, had little lasting affect on the trout population, other than by reducing cover and holding pools. New habitat structures were utilized in relatively short time. Overhead cover was used quickly while new cross-stream structures typically took ~ a year for a plunge pool to develop and be occupied by trout.

Work expanded beyond the C&R section, primarily aimed at sediment reduction. Large limestone was placed on ~150 yards of stream bank above C&R, and some work was done immediately below C&R. In 2006 WVCA improved 70 yards of ditch channel near the spring. In 2007 limestone sediment checks and rip-rap were placed in ~250 yards of storm water ditches from two poultry house areas, and sediment checks were placed in four woodland hollows with run-off into SR. In spring '08, 500 seedlings were planted above and within the C&R.

In April '08 WVDoH placed inlet protection at four SR Road culverts and may do more work to reduce sediment entry into SR.

Cows were removed, after summer 2007, from access to a ~125 yard SR section immediately above C&R. The new owner of this property has expressed interest in protecting stream banks and restoring habitat.

DNR announced in the Winter Issue of West Virginia Wildlife that the Spring Run Trout Hatchery began operating a discharge cleaning system in June 2007 and that “effluent from the hatchery now meets state water discharge standards”.

Physical habitat structures and stream bank protection within C&R are now (May '08) at the best condition observed since 1966.

Fishing & Rainbow Trout-From 1981 thru April 2008, free permits (typically annual permit) have been issued to 783 people, from 23 states, to fish SR. 120-140 permits have been issued annually in recent years. Harrison Shobe gave similar permits from the early 60s until his death, Sept. 1979. Those enjoying SR, with many returning over the years, include men and women; kids to octogenarians; and walks of life; working people, teachers, doctors, pastors, experienced fly fishers and beginners, etc. Burke, Kamps and Laski intend to continue issuing free permits to fly fish, C&R.

The unique high quality rainbow trout and fly fishing in the C&R section was legendary. Still today, non-fishing local people ask, “do you still have those big trout?” A lot of fly fishermen, including Burke, caught their biggest trout ever in the C&R, and a number of kids caught their first trout on a fly in the C&R. Older fishermen and those with infirmities and limited mobility have done well because of the easy access along SR. Many fishermen have given feedback, often written, about their experience. Several widely traveled fly fishermen often visited SR before decline in the fishery. Many said SR was the best small stream rainbow trout fishing they had experienced. Rainbows were of exceptional quality, heavy in girth and strong fighting.. Ten inch fish often showed parr-marks. In a 7/20/00 journal entry, Burke wrote on the day after returning from a western fishing trip, “Rbws are probably heavier than those in MO River I just fished in Montana”

SR held rainbows of at least three distinct “strains”, each exhibiting its own characteristic appearance.

1-often mentioned by fishermen, had an orange slash on the throat below the gill cover, like cutthroat trout.

2-deep bodied, small head, few spots over a slate grayish upper sides and back, with a salmon-like appearance. Burke talked with an older man who knew SR well and readily identified with this fish. This specimen may have disappeared. We haven't seen it lately.

3-overall appearance similar to rainbows from WV hatcheries.

DNR's Don Phares, in a Jan. 1986 letter to Burke said, “That section of Spring Run was probably the best trout fishery in West Virginia”.

Other Trout and Non-Trout Species-SR was a native brook trout stream prior to introduction of rainbow trout. Burke has a photo dated, “early 20s” showing three local

men with a stringer of 35 brook trout. Elvin Cowger, who provided the photo, thought brook trout were replaced by rainbows by 1930. Jim Shobe, a SR fisherman for many years, told Burke that SR was a rainbow fishery before the Spring Run Hatchery opened in 1952. Otis Kite who lived along Spring Run since the 1940s knew SR as a rainbow trout stream. Harrison Shobe's Conservation Officer notes record 500 rainbows stocked in SR, 4/4/46. Stockings were reported in later years.

During Burke's experience, SR was stocked with hatchery rainbows and brooks at the confluence with S. Mill Creek and at a location ~ ¼ mile upstream. S. Mill Creek was stocked from the mouth of SR downstream ~ a mile. SR fishermen encountered a few brook in the C&R during this period, but saw no evidence these fish were carrying over the winter. Mike Shingleton said this downstream stocking was stopped in 1987. In later years fishermen only occasionally saw a brook trout in C&R, but reported no difference in fishing success in the C&R after downstream stocking was stopped.

From July 2005 to June 2007, 112 native brook trout were moved to SR; 91 were introduced in 2006. All were released in Sec 2.

Brown trout are known to have been introduced to SR as follows:

- 105 fingerlings were distributed in SR Sept. 1969. Last one caught was 20", in 1975.
- about 30, 8-10" browns were released in Sec 4, summer 1986. They disappeared fast.
- catchable size browns were stocked in S. Mill Creek and lower SR the last year (~1987) these locations were on DNR's stocking list. Only one was known to have been caught in C&R. In the next few years Burke saw photos of 3# and 7# browns caught by bait fishermen near the mouth of SR, and heard of two, reported to have been ~9#.
- about 100-200 fingerlings were released in Sec 1-4, Sept '99 and May '03. A few, up to ~19" were caught. 10 C&Rs of a particular brown in the first pool, Sec 5 were documented by 5 fishermen from mid-summer '01 to 5/8/06. This fish was E/S and photographed 5/23/05. The "Gate Pool Brown" was last caught by Conservation Officer, Bob Waybright and est. to be 19".
- Burke heard that brown fingerlings and some browns up to 14" were released in S. Mill Creek. 3-4 yrs ago. Burke C&R a 21" brown in S. Mill Creek, 1/20/06, saw a photo of ~26" brown in Dorcas Store, and heard of a few other big browns from S. Mill Creek.

Fishermen C&R reports to the SR Monitoring Program for numbers of brook and brown are: Brook 11(2005); 67(2006); 73(2007). Brown 21(2005); 14(2006); 13(2007). Only two brook and 2 brown were found in 4/24/08 E/S, and only 12 brook and one brown have been reported by fishermen, Jan-April 2008.

E/S found a few sculpin in C&R, and a very large number of sculpin, a number of dace and perhaps another species near the mouth of SR. Burke has never seen a trout caught in SR regurgitate a sculpin or another fish. Occasional stomach pumping of SR trout has never revealed a fish of any species. In the late 80s, Jim Sisler, reported a 22" rainbow caught in Sec 9, regurgitated a rainbow ~12". The skeleton of the regurgitated fish is mounted in the SR camp.

Burke recalls catching a few small chubs, one small smallmouth bass, and one rock bass in C&R, but none in recent years. Many years ago Burke observed several suckers in the pool behind the cinder block house near the lower end of Sec 0.

Spawning-Rainbow trout spawn in SR. In an Oct.12, 1969 journal entry, Harrison Shobe described watching a spawning pair of 12-14" fish in front of the SR camp. E/S in April and May has found 2-4" fish. Fishermen experience indicates ~4" fish typically appear and sometimes take a fly in June. Rick Backus reported a sac-fry found in SR behind the SR Hatchery. Burke and others have observed spawning behavior on many occasions and noted spawning redds for many years, especially 1995 thru 2007 when Burke spent time observing spawning. The first redds generally appear in early Sept, but have been seen in late August. Redds continue to appear until December, with most appearing in mid-November. A few redds have been seen into Feb, and it is not unusual to catch a male rainbow ~10" ripe with milt in Jan-Feb. Most redds are in the upper C&R Sec, 5-9. A redd has appeared at the same location in the lower end of Sec 1, three of four years, '04-'07.during the buck season in late Nov. Most of the time fish are not seen at a redd. Fish seen at redds are generally 14-20". Fish at redds have appeared smaller the past few years. The range in length of small fish caught by fishermen and found by E/S suggests a spawning period extending over a period of time.

Loss of Macro-invertebrates- Tim Aspy first fished SR in 1963 and has continued to do so. Aspy worked on habitat restoration in SR since 1986 and is very familiar with SR. Aspy and Burke noticed the failure of the "sulfur" mayfly hatch, but didn't note the year. In a journal entry dated June 26, 2002, Burke wrote "this is about the 4th year with no late May sulfur hatch--" Burke and Aspy also noticed in this same time period what were believed to be "yellow sally" stoneflies no longer hovered over plunge pools in clouds, as they had done near dusk on summer evenings, notably in the upstream woods; Sec 6-9.

During this same period, the large number of aquatic insects of several species which accumulated around the porch light at SR camp on spring and summer evenings had disappeared. After moving to Petersburg in June 1994, Burke sometimes drove along SR Road at dusk in late spring or summer after a rain and observed aquatic insects over the damp pavement and spattering on the vehicle. This phenomenon hasn't been seen for some time. Crayfish, rarely seen now, were often noticed years ago when working in the stream, and Harrison Shobe remarked how he sometimes felt a crayfish in the stomach of a big trout. These changes were evident in the early 2000s.

Sept.1995, Steve Hiner, VA Tech entomologist sampled macro-invertebrates in Sec 6, reporting a diverse and heavy population, including stoneflies (yellow sallies), mayflies, caddis flies, scud, aquatic worms and more. Hiner stated, "baetis and Ephemerella are interesting re: fly fishing"; "Ephemerella, this is one of my favorites, find it often in spring creeks & tailwaters-many call it sulfur----, Great Hatch". Aug. 2004, Hiner sampled in Sec 6 and 1, stating with his findings---"the genus Ephemerella was common when I visited in 1995. Where are the Ephemerella now??" Tim Craddock and Neil Gillis have been sampling macro-invertebrates twice yearly since 2005 in the SR Monitoring Program and Craddock sampled in 2003. Data are presented on the monitoring program

website. Suffice to say here, stoneflies and Ephemerella are down and chironomids are increased. The once great macro-invertebrate population found in the C&R has taken a severe downturn. In April 2008, Tim Craddock wrote to Carl Rettenberger, re: SR macro-invertebrates, "Once a biological community is damaged it often takes many years to recover and that recovery may not ever be what it was prior to the insults. I think the lack of stonefly families is an important indicator".

Declines in Trout Size and Number- Decline in the great trout population recognized by those who fished SR in prior years seems to have begun in the early 2000s, gradually worsening to ~2005, continuing to decline, and taking a dramatic plunge from 2007 to the present, April 2008. A large drop in numbers of mid-size (11-13") and large (14-19") trout which had characterized SR for many years, and loss of 20-22" trout which had long been a possibility to see or hook, as well as the occasional 26-28" fish is widely recognized by fishermen. Failure to see fish on feeding stations, or spooking from one's presence, as was the case for many years, is now the usual condition.

Trout seem not to stay in a particular pool, or general area, as much as in the past, when larger fish or fish with an identifying characteristic or a tag were caught or observed in a "home" location, at times for months. Two examples: A 27" rainbow we named "Big Gal" was first seen by Aspy in a big pool in the upper end of Sec 7, 6/21/97, and caught by Burke, 6/23/97. She stayed in this pool throughout the summer until moving downstream to Sec 6 where Gary Berti and Burke observed her spawning Oct. 9, 1997. She remained ~50 yards farther downstream in Sec 6 until December, when she reappeared at her former pool in Sec 7. After C&R by 7 fishermen, between June and December, Big Gal was caught by a poacher in Jan. 1998. A 19" male rainbow caught, tagged and released in middle of Sec 9, 5/8/00, was documented to have been caught 16 times by 5 fishermen in Sec 9 and 8 and one time in Sec 6, with the last C&R from the most upstream pool in Sec 9, 8/17/02, and found dead from a heron wound, 8/20/02. Tag No.46 was 20.5". Similar observations with various fish were made until recent years.

Unlike the previous ~35 years of Burke's experience when some ups and downs in the fishing were observed, changes since ~2001 have been continually downward. This is well documented by fishermen reports collected in the SR Monitoring Program, the 4/24/08 E/S, and fishing journals by Burke and others.

As this decline was underway bigger fish begin to disappear from downstream sections. The threshold for finding bigger fish moved farther upstream, especially noticeable around 2001 and continuing to this date. Discussing the "upstream movement" or "disappearance downstream" however its termed, led to two areas of speculation: 1-trout were responding to an olfactory sensing of feed from the hatchery and were attracted to it, especially as macro-invertebrate life decreased. 2- trout were avoiding something which was more concentrated in the water in the stream sections vacated.

Aspy and Burke noticed a change in appearance in the stream bottom of the downstream C&R sections, notably sections 1 and 2 during this period of decline. Rocks had a film of soft material, which was removed when rubbed with finger or scratched with fingernail,

leaving a clean mark on the rock. These stream sections seem to be a “dead zone” holding only few trout. During low water periods the past few years a few quiet locations in Sec 6 to 9 collected a deposit of fine “blackish goo” several inches deep. High water removed this material. Algae, heavier in recent years, forms on rocks in Sec 8 and 9 and is removed by high water only to reform. The “goo” and algae have been noticed by Craddock and Gilles, Burke, Bryan Moore and others.

Watercress growth along SR has changed. Watercress beds which reached almost across the stream in September at two C&R locations, upper end and middle of Sec 4, have not been present since about the early 1970s. More watercress is seen above and below C&R than in C&R. Less cress in C&R may be attributable to shade along much of C&R and less slow moving streamside water throughout C&R.

Beginning in April 2001 and continuing to the latest fishing date April 22, 2008, Burke’s SR journal mentions the disappearance of bigger fish and shift of trout population density upstream. Burke expressed concerns to SR Hatchery manager, Rick Backus and had several talks and email exchanges with Backus, 2001-2003. In June 2003 Burke wrote Mike Shingleton about the serious decline in the SR fishery in the C&R section. Shingleton, Backus and Burke met July 3, 2003 to talk about those concerns. DNR, Spring Run Hatchery was cited by DEP in Jan. 2004 for exceeding discharge limits for certain parameters including suspended solids and biological oxygen demand. DNR installed and begin operating a discharge treatment process at the hatchery in June 2007, stating in the Winter Issue of West Virginia Wildlife that “effluent from the hatchery now meets state water discharge standards.”

Great Blue Herons which were frequently observed along C&R and which often left behind dead or wounded trout in the 14-22” range are no longer regularly seen as in the past, presumably because of the reduced trout population.

As reflected by fishermen catch reports and the 4/24/08 E/S, C&R currently appears to be a fishery for trout under 10” with overall population much lower than that of several years ago. Fish 12” and above are few in number.

Long time SR fishermen recognize that the former great rainbow trout fishery of Spring Run C&R is gone. Most of these fishermen, including numerous non-residents who bought a WV license only to fish SR, no longer visit SR.

Other Uses of SR C&R- 1997 to 2006 SR C&R was used for numerous conservation activities involving schools, WVCA, WVDEP, and WV Division of Tourism, local groups, individuals interested in stream protection and trout habitat improvement, introducing kids to fly fishing and stream conservation, and showing off WV. In May 1999 and since, ESPN’s Fly Fishing America featured its SR piece on national TV. Without the former great trout fishery, SR C&R will not attract such activities

Spring Run Monitoring Program-Starting in April 2005 and continuing in 2008, Spring Run Environmental Monitoring Program is sampling several aspects of SR: macro-invertebrates, water for several parameters, habitat quality, and C&R fishermen catch records. WVCA, WVDEP, WVDNR, and Cacapon Institute are main participants with coordination by WVCA and technical direction by Cacapon Institute. See www.wvca.us/wvwrc/spring_run_study.cfm for more information.

What Is Cause or Causes of Trout Decline?-This question has been discussed by fishermen continually since the decline first noticed in 2001. The following is typical. After two experienced fishermen a poor session fishing together 4/26/08, one said in email to Burke, “We spent our whole time postulating as to what might be going on. Something just ain't right!”

“Causes” which have been speculated about the most, given here in no particular order, are: poaching, sediment from various sources upstream and alongside the C&R, SR Trout Hatchery discharge and run-off from chicken houses, both upstream of C&R.

Poaching has been a problem for the entire history of the C&R project. Shobe discussed poaching in early years with Burke. Burke and partners were absentee owners from 1980 until mid-1994. After Burke moved to Petersburg, surveillance was increased in a variety of ways, use of SR by permitted fishermen increased, parking places near C&R were eliminated, certain people were offered a reward for poaching information, and Conservation Officers occasionally patrolled and made their presence known by visiting with fishermen at the camp. Several arrests were made, warnings were to given young people, and parents of offending young people were notified. Poachers left evidence of their presence such as, bait boxes, commercial bait containers, hunks of monofilament, hooks and lures in trees, corn, cheese, articles of clothing, fishing tackle accessories, dead fish with a bait hook in gullet, stream side tracks not characteristic of fly fishermen, etc. Artifacts of poaching have been saved as a “collection of shame”. Poaching during the 13+ years of absentee ownership was maddening but did not devastate the fishery, even during 1993 when a construction crew rented the next house upstream and poached heavily, finally leading to arrest of the main culprit. SR fishing was outstanding from the early 1960s to 2001 in spite of poaching. Also during this period, fishing, and taking of trout, was allowed in the 125 yard section immediately above C&R and a few other locations.

Since decline in the trout fishery, less evidence of poaching has been found and there is much less fishing in water upstream of C&R. The 125 yards of SR immediately above the C&R was posted in early 2007. This in no way excuses poaching, but decline of the fishery in C&R does not reflect the type of fish losses observed from poaching. Poaching tended to be sporadic and took fish from specific locations, primarily the larger pools. Uncharacteristic of poaching, the decline noted by fishermen and E/S shows a systemic and continuing loss of fish and reduction in average fish size throughout the entire C&R.

Sediment is an enemy of trout streams and enters SR in various locations. Prior to the trout decline and continuing to the present much of the restoration work in C&R was aimed at protecting streambank locations vulnerable to erosion. Additionally ~150 yards of vulnerable stream bank were protected upstream of C&R. In 2005 WVCA re-sloped ~50 yards of ditch through DNR property above the spring to reduce erosion. These efforts reduced sediment entry to some degree. In 2006-07 sediment checks were placed in ~250 yards of erosive run-off ditches from two chicken house locations upstream of C&R and sediment checks were placed in four woodland hollows with run-off into C&R.

Backus and others have speculated that widening of SR Road in 1997 may have increased sediment entry into SR from three culverts in Sec 5, 6 and 7, and that placement of excavated material on one side of Sec 5 may have impacted the stream. In April '07 WVDoH improved four SR Road culverts and is planning work at two other culverts to minimize sediment entry.

Over the years in summer months cattle were periodically allowed access to ~125 yards of SR immediately above C&R, obviously breaking down stream banks and encouraging erosion. With the new owner of this property who has expressed interest in restoring this stream section, fishermen hope cattle will no longer be an issue, and that streambank stabilization will be done, possibly with help by Trout Unlimited Potomac Headwaters Initiative.

Continuing to identify and correct sources of sediment entry is vital to SR improvement. One evident eroding location is on DNR property close to the spring discharge. This location is easily accessible for relatively straightforward erosion protection measures.

SR Trout Hatchery began operating in 1952 and is WV's largest producer of rainbow trout, stocked over a wide area. Trout are spawned at DNR's Petersburg Hatchery and fingerlings transferred to Spring Run where they grow to size for stocking. Only rainbow and golden rainbow are raised at SR. Hatchery production data provided to Burke by Mike Shingleton, showed a steady increase in pounds of trout produced at SR Hatchery from 1971-72 to 2004-05. Average pounds (174, 583) for the six year period, 1999-00 to 2004-05 showed a 17.4% increase over the average pounds (150,914) for the 24 year period 1971-72 to 1998-99. Greatest production was 2001-02 at 192,935 pounds. SR Hatchery Manager, Rick Backus related to Burke that his predecessor at the hatchery reduced feed given to trout during periods of low water flow from the spring, but that he (Backus) did not reduce feed rate during low water conditions. It is unclear, but fishermen expect the up-graded SR Hatchery will increase production even more in the future.

For years fishermen observed the waste plume from hatchery raceways cleaning and avoided fishing on the weekly cleanout day, usually Monday. The highly discolored plume which extended thru the entire C&R and below typically was present an hour or two in the morning and again for a similar time in the afternoon. While annoyed because most of a day was unfit for fishing or working in SR, fishermen gave little thought to hatchery impact on the stream until the decline in trout population was noted. The

reported decline of the great native brook trout fishery in Big Spring, PA, eventually tied to an upstream trout hatchery, also got fishermen's attention who asked the obvious question. Is the hatchery harming SR? An internet search on trout hatchery pollution shows that pollution from trout hatcheries is a recognized problem for downstream fisheries. In Jan. 2004 WVDEP cited SR Hatchery for exceeding discharge limits for suspended solids and biological oxygen demand. DNR began operation of a discharge cleaning system at SR Hatchery in June 2007. In the Winter Issue of West Virginia Wildlife, DNR reported on the hatchery upgrade, stating, "Effluent from the hatchery now meets state water discharge standards". Fishermen continue to report that water released from the hatchery discharge cleaning system is very turbid throughout C&R and often has a foul odor. It is not known if "state water discharge standards" are met in C&R when the cleaning effluent is present. Fishermen are not certain, but think the turbid water release happens twice a week.

With the hatchery discharge cleaning system in use less than a year it's not likely that improvements in the fish or macro-invertebrate populations have occurred and it is uncertain when or if there will be improvements. Fishermen remain dismayed and apprehensive about the future.

The role of fish escaping from the hatchery into SR has been raised. A fisherman reported the hatchery manager told him that prior to the discharge cleaning system 10-20 fish were lost weekly into SR, but none would escape thru the new process. A construction supervisor for the hatchery project told Burke that no fish would escape thru the cleanup process. A former part-time hatchery employee recently told Burke the hatchery manager took steps several years ago to reduce fish loss into SR. Trout with worn fins and/or lower tail lobes, and/or pale color or otherwise looking like "hatchery fish" and not "SR fish" have been occasionally C&R by fishermen for years. Also a few golden rainbows, probably less than 10 per year, have been observed in C&R, but they disappear in a short time. Fishermen have assumed that losses from the hatchery of rainbows and golden rainbows would be in proportion to their presence in the hatchery. Smaller fish leaving the hatchery before fin wear occurred would be expected to take on the characteristics of stream-bred fish and be indistinguishable from them.

Hatchery escapees vs. naturally reproduced rainbows could be one of several topics for graduate student research at SR to understand the dynamics of wild trout and a variety of external impacts on their environment.

Two Chicken (broiler) Production Facilities are located upstream of C&R, about 150-300 yards from SR at an elevation well above the stream. Dates when these operations were begun are not known to fishermen, but they were probably started in the 1980s. Storm water run-off from these areas is voluminous and brings sediment with it. Water flows slow to a trickle, followed by run-off ditches from both chicken house areas becoming dry a few days after storm run-off. Steps taken in 2007 to slow run-off and reduce sediment movement to SR are discussed above. Fishermen and probably no government agency have evidence that chemicals, bacteria, or whatever potentially harmful substance is responsible for trout and macro-invertebrate declines in SR. Both

chicken operations have recently received an “environmental award” from Pilgrims Pride which recognizes poultry growers who voluntarily take steps to maintain a “clean” operation. However, there is a growing number of people, fishermen and non-fishermen, who question whether these chicken production facilities are the problem, or part of the problem. From a laymen’s point of view, and in view of the strong storm water run-off from both locations, fishermen believe that installation of sediment basins at both locations is a prudent step to protect SR.

Dead Trout are most often seen in the fall and early winter during the spawning period. Puncture and “scissor-type” wounds on dead fish, typically 14” and bigger suggest Great Blue Heron as the predator. Presumably fish smaller than ~14” are consumed. Often fish with ugly wounds are caught and their ability to survive is questionable. Occasionally a fish with a healed wound is caught. Prior to the decline in trout population Great Blue Herons were regularly seen along C&R, especially during fall and winter. Now these birds are seen much less often. Kingfishers are often seen along C&R. During the spawning period it is not unusual to find a large fish dead with no outward physical damage. Over the years, especially when there was a good population of large fish, a dead fish, which had broken the poacher’s line, was found with a bait hook in its gullet. There have been very few occasions of dead fish associated with C&R fly fishing. With the many thousands of fish C&R, fish mortality arising from permitted fly fishermen is not an issue.

Fish Feeding has or is being done at a few locations on SR above and below C&R at pools very close to dwellings. **1.** Feeding in a big pool close the lower end of Sec 0 has been done since 1994 or 1995. This pool holds a number of fish, including a few nice ones, but not exceptionally large fish. **2.** Feeding in a very big pool near the mouth of SR for a few years was stopped a year or two ago. Numerous trout, including some large fish were present when feeding was done. It is uncertain if the present occupant of the nearby house is feeding. **3.** The occupant of a house about 200 yards above Sec 9 told Burke and Carl Rettenberger in summer ’07 that he gave dog food to the fish each morning. A number of large trout were present at that time of the discussion. **4.** Feeding at another dwelling about half way between upper Sec 9 and the hatchery is uncertain but probably occurred several years ago. Long before the C&R trout decline, a large number of trout were observed behind this dwelling. Dog or cat food, bread and maybe table scraps seem to comprise what is offered the fish.

It appears that feeding above and below C&R has been ongoing before and during the decline in C&R fishery. Feeding locations closest the lower and upper ends of C&R have continued through the good and bad periods of C&R trout population. The influence of artificial feeding on trout population and size in C&R and trout movement is hard to judge. It is difficult to imagine that dog food put into SR once a day upstream of C&R would be cause for the strong upstream movement of the trout population observed since 2001.

Five dwellings are close to SR between C&R and the hatchery. It is not known if “gray water”, household waste, automotive waste, etc. enter SR from or around these locations.

Items, such as fruits and vegetables, drink and household containers, kid's toys, etc have been found in C&R for many years.

After repeatedly going over various scenarios of “what caused or is causing the C&R fishery decline”, fishermen and others involved with C&R keep coming back to the disappearance of certain macro-invertebrates, first noticed before or near noticing the beginning of the decline in trout.

Research dealing with SR trout or benthics has long been discussed by fishermen because SR seems an ideal location for a graduate student, government agency, or government agency- fishermen project. The current discussion about what has or is happening in SR raises many questions which could be addressed by research. Considerable information about trout movement, over-wintering, growth, C&R survivability, and other questions could be gotten from fishermen C&R reports if tagged trout, either wild or hatchery, were specifically placed in the defined C&R sections. The SR Monitoring Program is gathering data on a number of parameters in SR to evaluate changes which may occur after installing the effluent cleaning process at the hatchery.

How Can the Spring Run Rainbow Trout Fishery Be Restored to Its Former Glory?

This section is left open to encourage input from those who read this document and are interested in the future of Spring Run.

5/27/08