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2017 Rapid River Fishery Management

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Rapid River Fishery Management

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Rapid River Fishery Management

SUMMARY

The Rapid River, located in Township C and Upton in Oxford County, has long been noted for its outstanding brook trout population. Brook trout in the Rapid River are sustained entirely by natural reproduction and support a popular, heavily utilized sport fishery of regional and statewide significance. Landlocked salmon are present also and provide an important ancillary fishery. During the 1980's, smallmouth bass were illegally introduced into Umbagog Lake, where they became well established and have since migrated to the Rapid River.

Intensive creel surveys have been conducted periodically since 1994 to monitor this important fishery. The most recent creel surveys, including in 2016, were intended to monitor angler use, catch, and harvest subsequent to changes in fishing regulations and flow regimes, and to assess the impacts of smallmouth bass on the river's brook trout and salmon fisheries.

Creel survey data from 2002 to 2004 documented a decline in brook trout production. This decline has now at least partially abated and the vigorous expansion of smallmouth bass numbers have slowed. We attributed this to improved protection of brook trout provided by more restrictive fishing regulations beginning in 2004, to wet and cool environmental conditions that prevailed during several years from 2005 to 2010, and to unfavorable river flows for bass spawning and early recruitment during the same period. The fishing regulation changes included season and area closures directed at eliminating hooking-related mortalities on brook trout during periods of vulnerability (e.g. mid and late-summer thermal refuge sites, pre-spawning staging sites, and over-winter sites). Management efforts will continue to focus on stabilizing and improving conditions for trout survival by manipulating flows from Middle Dam to maintain a high level of stress to smallmouth bass during their spawning, incubation, and early recruitment periods.

KEY WORDS: BKT, LLS, SMB, ANGLER SURVEY, FLOW REGIMEN, REGULATIONS

INTRODUCTION AND STUDY AREA

The Rapid River, located in Township C and Upton in Oxford County, is 3.2 miles long from Middle Dam at the outlet of the Richardson Lakes to Umbagog Lake (Figure 1). This water has long been noted for its outstanding brook trout (*Salvelinus fontinalis)* population. Brook trout in the Rapid River are sustained entirely by natural reproduction and support a popular, heavily utilized sport fishery of regional and statewide significance. Landlocked salmon (*Salmo salar*) are also present and provide an important ancillary sport fishery. Salmon were introduced into this drainage during the late 19th century and became naturalized in the Rapid River. The salmon population is still supported by natural reproduction, although hatchery stocks contribute small numbers to the fishery as emigrants from upstream lakes.

Pond in the River (512 acres), located 0.6 miles below Middle Dam, divides the Rapid River into two reaches. Pond in the River has mean and maximum depths of 19 ft and 40 ft, respectively, and is an important habitat feature in the drainage because brook trout from the Rapid River utilize it for summer temperature refuge and over-wintering (FPLE Energy 2005, Jackson and Zydlewski 2007). Salmon use Pond in the River in similar ways but to a lesser extent (FPLE Energy 2005, Jackson and Zydlewski 2007).

The Rapid River and Pond in the River drain to 7,850-acre Umbagog Lake, which outlets to the Androscoggin River in New Hampshire. Umbagog Lake is largely homothermous and supports several warmwater fish species, so it provides only marginal habitat for cold water fishes. It does, however, provide important over-wintering habitat for Rapid River brook trout (FPLE Energy 2005).

During the 1980's, smallmouth bass (*Micropterus dolomieu*) were illegally introduced into Umbagog Lake. They became well established there and have since migrated to other connecting waters, including the Rapid River and Pond in the River (Boucher 2002). Middle Dam restricts their natural migration into other waters in the Rangeley chain of lakes. Smallmouth bass interactions with brook trout, and strategies to mitigate them, have been extensively examined since 2005. Where pertinent, results of that work (Boucher 2005; Kleinschmidt Associates 2006, 2007, 2008) are summarized in this report.

Flows in the Rapid River are controlled at Middle Dam, located on the outlet of the Richardson Lakes. Middle Dam is one of several large dams controlling water levels on lakes in the upper Androscoggin River drainage. Currently owned by Brookfield Renewable Energy Partners, their primary function is to provide guaranteed minimum flows to a variety of downstream industrial and municipal interests. Middle Dam was re-licensed in 2000 by the Federal Energy Regulatory Commission (FERC). Consequently, changes to the summer and winter minimum flows were established for the Rapid River.

Fishing regulations for brook trout are highly restrictive in the Rapid River and in the adjacent waters utilized by these fish. Improved access, higher angler use, and a decline in fishing quality for brook trout observed from 1985 to 1995 prompted the Department to impose a catch-and-release regulation on brook trout in 1996. In 1998, a portion of the north basin of Umbagog Lake, where Rapid River brook trout over-winter (Boucher 2005, FPLE Energy 2005), was closed to ice fishing after District Game Wardens reported harvests of significant numbers of large brook trout. This area was expanded in 2008 after radio telemetry studies showed the entire north basin provides winter habitat for trout originating from the nearby Magalloway and Diamond Rivers (Boucher and Timmins 2008). In 2004, a 0.5-mile reach of the Rapid River below Pond in the River was closed to fishing after September 15 to eliminate hooking mortalities of pre-spawning brook trout staging in that area. That same year Pond in the River was closed to all fishing in July and August to protect brook trout seeking thermal refuge. Also in 2004, harvest rules on salmon were relaxed (3 fish bag; 12" min. length) to reduce their abundance and minimize competitive interactions with trout. Other special fishing regulations on the Rapid River and Pond in the River include fly-fishing only, the prohibition of barbed hooks, and the harvest of smallmouth bass is unrestricted. Pond in the River is closed to ice fishing.

Clerk creel survey funded and staffed by Brookfield Renewable Energy Partners, a condition of FERC re-licensing, was conducted in 2013 and 2016 to monitor angler use, catch, and harvest subsequent to changes in fishing regulations and flow regime, and to monitor fishery impacts of smallmouth bass. In this report, data from the 2016 survey are compared with similar surveys conducted in 2002-2004 (Boucher 2002 and 2005), 2007 (Boucher 2008), 2010 (Boucher 2011), 2013 (Boucher and Howatt 2014) and with voluntary angler data collected annually since 2007.

METHODS

A creel survey and angler counts were conducted from May 1 to September 30, 2016 (Table 1). The river was divided into two sections (Figure 1) based on the intensity of angler use observed during previous surveys. The upper section extended from Middle Dam and downstream 1.3 miles to the lower end of Long Pool, excluding Pond in the River. The lower section, about 1.9 miles in length, extended from Long Pool to Umbagog Lake. The surveys were of a stratified random design, with one weekend day and one to two weekdays sampled each week. Each survey day was divided into three time periods of equal length (8AM-11AM; 11AM-4PM; and 4PM-8PM). Time periods were sampled randomly within each survey day with approximately equal coverage given to each period throughout the survey. During each sampling event, clerks made instantaneous counts of anglers fishing each section, excluding those fishing Pond in the River. Standard clerk interviews were conducted at popular fishing spots to collect catch and harvest data. Total fishing effort for each section and the entire reach was estimated from formulae described by Pollack et al. (1994) for a roving survey.

SUMMARY OF FINDINGS

- An estimated 3,804 ± 536 angler trips were made on the Rapid River in May through September, 2016 (Table 2). Angler effort declined from 1998-1999 to 2002-2004 and again from 2002-2004 to 2007 and 2010 (Table 2 and Figure 2). Angler effort through late August 2013 was similar to that observed in 2010, suggesting that the declining trend observed earlier stabilized. The development of excellent salmonid fisheries in nearby, more accessible rivers, such as the Magalloway, Kennebago, and Androscoggin Rivers, may have attracted anglers away from the Rapid River. It's also likely that the well-known invasion of smallmouth bass, and the associated impacts to the trout fishery, discouraged anglers from fishing the Rapid River.

- The fishery continued to be focused on the upper 1.3-mile reach between Middle Dam and Long Pool (Table 2). In 2010, 2013 and 2016, only about 6% of the total use occurred in the 1.9-mile reach from Long Pool to Umbagog Lake, which is more difficult to access (Figure 1).

- The catch rate for brook trout ≥12 inches observed by clerks in 2016 was 0.20 fish/hour, which is slightly higher than the normal range observed since 2003. This was further evidence that the decline in catch rates for trout observed from 2002 to 2004 (Boucher 2002, 2008) has reversed (Table 3).

- The 2016 clerk data showed catch rates for brook trout <12 inches have increased gradually since 2007 (Table 3). This statistic suggested that recruitment of young brook trout remains steady. However, this recruitment indicator remains below the level observed prior to the invasion and expansion of smallmouth bass in the Rapid River and Pond in the River (Boucher 2000, 2002).

- The catch rate for legal-size salmon (≥12 inches) declined from the high of 0.584 fish/hour in 2013 to 0.395 fish/hour in 2016 (Table 3). The catch rate for sublegal salmon (<12 inches) declined in 2016 as well. These statistics are still above the values compiled in recent surveys. Anglers interviewed by clerks continued to release a high proportion of their legal salmon catch (96%).

- Smallmouth bass numbers, as indicated by clerk catch rate statistics (Table 3), increased dramatically in the Rapid River from 2003 (0.050 fish/hour) to 2013 (0.177 fish/hour). The 2016 survey showed a decrease to 0.069 fish/hour caught. The catch rate trend for bass has increased in every survey since they first began being caught in the river at a rate of 0.009 fish/hour in 1999. The data from this latest survey suggested that smallmouth bass numbers in the Rapid River may finally have peaked. This could also be explained by year-class failures that are possibly the result of the controlled spring flow regimes that are intended to be detrimental to young bass.

- Catch statistics provided by volunteers from 2008 to 2015 differed considerably from one year to the next (Table 4). This is due largely by the varied trip numbers and a change in participating volunteers. Recent catch rate per hour for brook trout peaked at 0.516 in 2013, but dropped to zero in 2015 (small sample size).

- Volunteer catch rates for salmon held relatively stable from 2009 to 2015 (Table 4). Voluntary anglers also released most of their catch of legal salmon (96-100% since 2008), despite more liberal harvest rules and active promotion of increased salmon harvest by Department staff and others (Boucher 2011).

- Volunteers reported variable catch rates for smallmouth bass from 2008 to 2015 (Table 4), unlike the clerk data (Table 3), which had shown a steady increase until 2016. Volunteers caught bass at an average rate of 0.058 fish/hour from 2013 to 2015 – a low rate compared to the rates from 2010 to 2012 (Table 4). There had been anecdotal evidence that some anglers recently began to specifically target bass in the Rapid River, either in an attempt to "help the trout" or because they simply enjoyed the fishing experience offered by bass. Clerk data no longer supports that rationale now either (Table 3).

- The average sizes of brook trout reported by volunteers ranged from 14.5 to 15.0 inches from 2008 to 2015. The average sizes for salmon was 14.3 to 16.2 inches over this same period (Table 4). Brook trout showed no clear upward or downward trend, but salmon mean lengths have increased from 2011 to 2015. Average smallmouth bass sizes reported by volunteers have ranged from 5.5 to 9.8 inches since 2008, suggesting this riverine population was composed primarily of young fish.

DISCUSSION

Creel survey data collected from 2002 to 2004 suggested that recruitment and survival of brook trout (and of salmon to a lesser degree) deteriorated during that period. Probable causal factors included increased cannibalism by adult brook trout, the colonization of smallmouth bass, an altered flow regime after 2000, and severe drought conditions that prevailed from 2000 to 2002 (Boucher 2005). Several recommendations were made in 2003 to provide additional protection to brook trout and their critical habitats, to reduce the abundance of brook trout competitors (including salmon), and to carefully assess the feasibility of using flow manipulations to reduce smallmouth bass production in the free-flowing reaches of the Rapid River system.

Most of the recommendations were implemented by 2008, including: a) certain brook trout habitats were closed to fishing during critical time periods, as described earlier; b) length and bag limits for salmon were relaxed and their harvest was encouraged; and c) studies were completed to determine if pulsing flows during key smallmouth bass life history events could reduce their production.

Creel survey data collected since 2007 suggested that the decline in brook trout production documented earlier was partially arrested, but that the vigorous expansion of smallmouth bass numbers may be ongoing. It's likely that increasingly restrictive fishing regulations, beginning in 2004, were at least partially responsible for the positive trend in brook trout recruitment. The fall-season closure below Lower Dam, where most adult brook trout stage for spawning by mid-September, eliminated most hooking mortalities of gravid fish after 2003. Although hooking mortalities are believed to be low in the Rapid River, including during the early fall season, many individual brook trout are hooked and handled repeatedly (evidenced by a high degree of facial scars). Heavily scarred fish often exhibit reduced growth and body condition (Boucher and Warner 2006, Bonney 2006), and they may be particularly vulnerable to the additional stress imposed by hooking, playing, and landing.

Expanding the area closed to winter fishing in Umbagog Lake in 2008 perhaps benefited Rapid River brook trout as well. The relaxed salmon regulations appeared to have little effect in reducing their abundance, as most anglers continued to release their catch.

Studies conducted by Kleinschmidt Associates (2006, 2007, 2008) documented that flow pulses from Middle Dam can negatively affect smallmouth bass reproduction in the Rapid River. In 2006 and 2007, short-term (±12-hour) high flow releases of 1,200 cubic feet/second during the bass spawning period (late June to early July) were effective in destroying production of fry in at least 50% of studied nests. A similar pattern of high, fluctuating flows occurred naturally during the 2005, 2008, 2009, and 2014 bass spawning periods. We believe that several years of unfavorable flows during bass spawning, and the cooler, wetter conditions that prevailed during much of the same period (Figures 3 and 4), were partially responsible for the decline in bass recruitment and the stabilization of brook trout recruitment observed during the latest creel surveys.

In light of this, we have worked closely with Brookfield Renewable Energy Partners to schedule annual pulsing flows from Middle Dam during the late June-early July period, insofar as hydrologic conditions permit (Appendix A). This program was instituted in 2010 and should serve to maintain a high level of stress on smallmouth bass during their spawning, incubation, and early recruitment periods, and therefore maintain or improve conditions for trout survival. A detailed monitoring plan has been designed to provide a long-term assessment of this strategy.

RECOMMENDATIONS

1. Continue to collaborate with other fishery professionals, Brookfield Renewable Energy Partners, FERC, and the public to determine the long-term effectiveness of the flow manipulation strategy in reducing smallmouth bass production. If possible, seek adjustments in the river's licensed flow regime to accommodate the late-June/early July releases during as many years as possible.

2. Maintain the current suite of fishing regulations, and continue to promote the increased harvest of landlocked salmon to lessen competitive interactions with brook trout.

3. Continue to closely monitor trends in spawning and recruitment success, age and growth, size structure, and sport fisheries for brook trout, landlocked salmon, and smallmouth bass.

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Figure 1. Site location map for Rapid River creel surveys, 1998-2016

Table 1. Description of Rapid River clerk creel surveys, 1998-2016.

Year	Date	No. days surveyed	No. days angling days during survey
1998	May 11–September 30	31	183
1999	May 14–September 30	28	183
2002	May 14–September 30	43	183
2003	May 3–September 30	49	183
2004	May 1–September 30	45	183
2007	May 1–September 30	48	183
2010	May 1–September 30	47	183
2013*	May 1–August 31	40	153
2016	May 1–September 30	60	183

* 2013 survey was cut short due to staffing issues.

Table 2. Angler effort estimates for the Rapid River, 1998-2016. Confidence limits (95%) are in parenthesis. * Note: 2013 survey ended August 31.

	Upper reach (1.3 miles)		Lower reach (1.9 miles)		Both reaches (3.2 miles)	
Year	Trips	Trips/mile	Trips	Trips/mile	Trips	Trips/mile
1998	6,471 (2,099)	4,978 (1,615)	677 (477)	356 (251)	**7,035 (2,208)**	**2,198 (690)**
1999	8,317 (2,025)	6,398 (1,558)	760 (626)	400 (329)	**8,728 (2,133)**	**2,728 (667)**
2002	4,446 (1,275)	3,420 (981)	531 (324)	279 (171)	**4,926 (1,358)**	**1,539 (424)**
2003	5,255 (1,252)	4,042 (963)	180 (131)	95 (69)	**5,435 (1,298)**	**1,698 (406)**
2004	4,686 (1,265)	3,605 (973)	425 (285)	223 (150)	**5,101 (1,366)**	**1,594 (427)**
2007	3,341 (815)	2,570 (627)	270 (143)	142 (75)	**3,605 (843)**	**1,126 (263)**
2010	3,960 (1,284)	3,046 (988)	271 (180)	143 (95)	**4,208 (1,315)**	**1,315 (411)**
2013*	2,720 (670)	2,092 (515)	161 (130)	85 (68)	**2,879 (723)**	**900 (226)**
2016	3609 (478)	2,776 (368)	202 (162)	106 (85)	**3,804 (536)**	**1,189 (168)**

Figure 2. Rapid River angler use estimates, entire river, 2003-2016 (Note: 2013 survey ended in August and is not included)

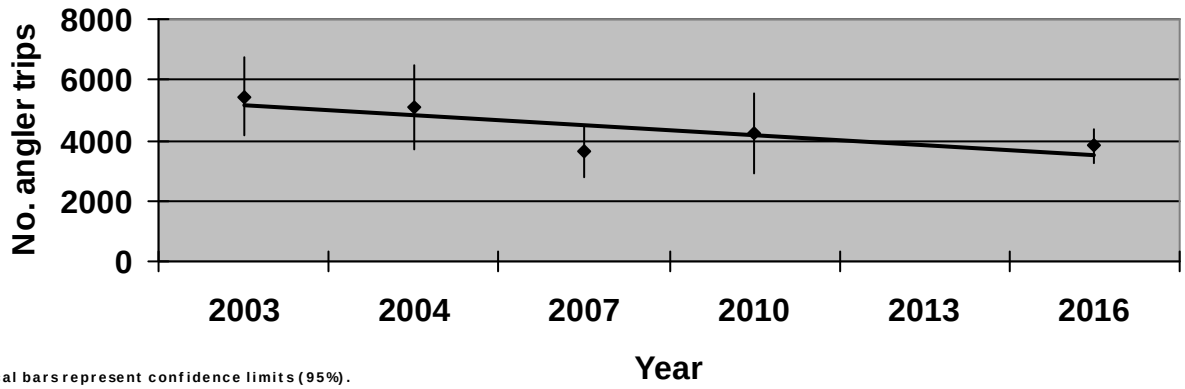

Table 3. Summary statistics for Rapid River clerk creel surveys, 2003-2016.

Parameter	Species	2003	2004	2007	2010	2013[3]	2016
No. anglers surveyed		721	689	363	540	331	475
No. hours surveyed		2,545	2,554	1,374	2,560	1,349	2,212
Number (%) successful anglers	Brook trout Salmon Smallmouth bass	169 (23) 161 (22) 26 (4)	131 (19) 179 (26) 50 (7)	81 (22) 127 (35) 48 (13)	169 (31) 226 (42) 98 (18)	101 (31) 204 (62) 59 (18)	196 (41) 248 (52) 81 (17)
Number legals[1] caught	Brook trout Salmon Smallmouth bass	366 279 68	226 318 135	169 323 141	417 532 249	218 788 239	448 874 152
Number (%) legals[1] released	Brook trout Salmon Smallmouth bass	366 (100) 278 (99) 17 (25)	226 (100) 315 (99) 7 (5)	169 (100) 318 (98) 9 (6)	417 (100) 528 (99) 34 (14)	218 (100) 771 (98) 53 (22)	448 (100) 841 (96) 117 (77)
Number (%) sublegals[1]	Brook trout Salmon	143 (28) 631 (69)	173 (43) 320 (50)	109 (39) 199 (38)	427 (51) 492 (48)	91 (29) 291 (27)	140 (24) 96 (10)
Catch/hour[2] (legals[1])	Brook trout Salmon Smallmouth bass	0.130 0.114 0.050	0.086 0.134 0.065	0.138 0.259 0.182	0.160 0.242 0.137	0.162 0.584 0.177	0.203 0.395 0.069
Catch/hour[2] (sublegals[1])	Brook trout Salmon	0.061 0.269	0.080 0.147	0.104 0.187	0.173 0.192	0.067 0.216	0.063 0.043
Estimated number legals[1] caught	Brook trout Salmon Smallmouth bass	2,772 ± 662 2,120 ± 507 489 ± 117	1,673 ± 448 2,357 ± 631 1,000 ± 268	1,680 ± 393 3,209 ± 751 1,399 ± 327	3,250 ± 1,106 4,146 ± 1,296 2,205 ± 606	2,677 ± 672 6,852 ± 1,721 2,073 ± 521	3,588 ± 506 6,999 ± 986 1,217 ± 172

[1] Legal brook trout are considered to be 12” and greater for the purpose of this report. Legal salmon are 14” prior to 2004 and 12” thereafter.

[2] Mean catch/ hour computed from both complete and incomplete trips. Confidence limits (±), where reported, are at 95%.

[3] May – August only.

Table 4. Summary statistics for Rapid River voluntary surveys, 2008-2015.

Parameter	Species	2008	2009	2010	2011	2012	2013	2014	2015
No. anglers surveyed		73	152	88	77	95	30	23	6
No. hours surveyed		216	674	265	364	318	157	137	32
Number (%) successful anglers	Brook trout	17 (23)	68 (45)	26 (30)	35 (46)	49 (52)	25 (83)	18 (78)	0 (0)
	Salmon	28 (38)	88 (58)	37 (42)	37 (48)	52 (55)	27 (90)	21 (91)	4 (80)
	Smallmouth bass	17 (23)	24 (16)	29 (33)	10 (13)	21 (23)	7 (23)	3 (13)	1 (20)
Number caught (legal fish only)	Brook trout	29	188	107	111	163	81	44	0
	Salmon	57	264	100	155	160	79	72	17
	Smallmouth bass	33	31	82	14	77	13	4	2
Number (%) released (legal fish only)	Brook trout	29 (100)	188 (100)	107 (100)	111 (100)	163 (100)	81 (100)	44 (100)	0 (0)
	Salmon	55 (96)	253 (96)	100 (100)	152 (98)	160 (100)	79 (100)	72 (100)	17 (100)
	Smallmouth bass	0 (0)	7 (23)	40 (49)	0 (0)	1 (1)	8 (61)	0 (0)	2 (100)
No. (%) sublegals	Salmon	20 (26)	97 (27)	40 (29)	47 (24)	42 (21)	8 (9)	10 (12)	1 (6)
Catch/hour (legal fish only)	Brook trout	0.134	0.279	0.404	0.305	0.513	0.516	0.321	0
	Salmon	0.175	0.451	0.387	0.426	0.503	0.503	0.526	0.531
	Smallmouth bass	0.306	0.088	0.489	0.038	0.245	0.082	0.029	0.063
Catch/hour (sublegals)	Salmon	0.065	0.219	0.144	0.129	0.132	0.051	0.073	0.031
Mean length (inches) of fish reported ± SE	Brook trout	14.8 ± 0.8	14.5 ± 0.2	15.5 ± 0.3	15.3 ± 0.4	15.4 ± 0.3	16.0 ± 0.3	14.9 ± 0.5	-
	Salmon	14.3 ± 0.3	14.6 ± 0.1	15.0 ± 0.2	14.6 ± 0.2	14.9 ± 0.2	15.0 ± 0.3	15.5 ± 0.2	16.2 ± 0.8
	Smallmouth bass	5.5 ± 0.4	9.0 ± 0.9	8.0 ± 0.4	6.9 ± 0.7	8.2 ± 0.6	9.8 ± 0.3	5.8 ± 0.8	6.0 ± 0.0

Appendix A. Flow regime for Rapid River smallmouth bass control.

This proposed flow schedule is designed to maximize negative impacts to smallmouth bass spawning and recruitment processes in the Rapid River, and is based on the findings of in situ observations made in 2006 and 2007 (Kleinschmidt Associates, 2007 and 2008), and on a thorough review of the scientific literature. These findings include:

- The timing of bass spawning, incubation, and hatching to the most vulnerable life stages occurs in the Rapid River with some degree of inter-annual predictability.
- In the Rapid River, more nests are constructed in "flow-vulnerable" locations when discharge during the mid to late June period is maintained at 400-800 cubic feet/second (cfs) rather than at +1,000 cfs.
- Smallmouth bass black fry are most vulnerable to flow pulses during the last week of June and the first week of July.
- Bass spawn in successive cohorts, therefore multiple pulses are required
- Multiple pulses of 1,200 cfs for at least 10 hours per pulse appear to be effective
- Bass fry rise from the nests at night and therefore nocturnal pulsing is probably more effective than daytime pulsing
- Nocturnal pulsing is less disruptive to angling activities
- By late June, brook trout fry are sufficiently mobile (>50mm) and are able to seek velocity refuge, and so are not negatively impacted by temporary increases in flow rate.
- Overwinter survival of first-year smallmouth bass can be negatively impacted by erratic flows during their initial growth stanza, and late during their first winter at large.

Date	Discharge	Duration	Time of day
June 15 to June 25	Maintain at 400-800 cfs, when compatible with upstream and downstream license requirements.		
June 27	1,200 cfs	10-12 hours	8PM-8AM
June 30	1,200 cfs	10-12 hours	8PM-8AM
July 3	1,200 cfs	10-12 hours	8PM-8AM
July 6	1,200 cfs	10-12 hours	8PM-8AM
3rd weekend in July	1,300-1,800 cfs	Whitewater boating flow	Per license
4th weekend in July	1,300-1,800 cfs	Whitewater boating flow	Per license
1st weekend in August	1,300	Whitewater boating flow	Per license
2nd weekend in August	1,300-1,800 cfs	Whitewater boating flow	Per license
March 15-30	As much as possible	As long as possible	No restrictions

COOPERATIVE

STATE FEDERAL

PROJECT

This report has been funded in part by the Federal Aid in Sport Fish Restoration Program. This is a cooperative effort involving federal and state government agencies. The program is designed to increase sport fishing and boating opportunities through the wise investment of angler's and boater's tax dollars in state sport fishery projects. This program which was founded in 1950 was named the Dingell-Johnson Act in recognition of the congressmen who spearheaded this effort. In 1984 this act was amended through the Wallop Breaux Amendment (also named for the congressional sponsors) and provided a threefold increase in Federal monies for sportfish restoration, aquatic education and motorboat access.

The program is an outstanding example of a "user pays-user benefits" or "user fee" program. In this case, anglers and boaters are the users. Briefly, anglers and boaters are responsible for payment of fishing tackle, excise taxes, motorboat fuel taxes, and import duties on tackle and boats. These monies are collected by the sport fishing industry, deposited in the Department of Treasury, and are allocated the year following collection to state fishery agencies for sport fisheries and boating access projects. Generally, each project must be evaluated and approved by the U.S. Fish and Wildlife Service (USFWS). The benefits provided by these projects to users complete the cycle between "user pays – user benefits."

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