

2006 DEAD RIVER PRIVATE BOATER SURVEY RESULTS

October 9, 2006

Compiled by the Dead River Survey Committee

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with the cooperation of the following organizations:

**American Whitewater Affiliation
Appalachian Mountain Club
Kayak and Canoe Club of New York
Maine Canoe and Kayak Racing
Organization (MaCKRO)
Maine Outdoor Adventure Club (MOAC)**

**Merrimack Valley Paddlers
Mount Washington Valley Paddlers
Northeast Paddlers Message Board
No Umbrella Magazine
Penobscot Paddle and Chowder Society
Vermont Paddlers Club**

I. BACKGROUND

The dates and flow levels of Dead River recreational releases have historically been established through negotiations between representatives of several private boater organizations, commercial raft companies, FPL Energy (formerly Central Maine Power), and the Kennebec Water Power Company. The players in this process have generally been able to come to amiable agreement on a schedule of releases that satisfies the sometimes competing interests of the parties involved.

After attending the 2005 and 2006 Dead River release scheduling meetings, Penobscot Paddle and Chowder Society president Kyle Duckworth realized that he and other private boaters at the scheduling meeting had no definitive idea of the needs and desires of the paddlers they were representing. The lack of empirical data hindered them in two ways: First, they were not certain what kind of release schedule they should argue for; and second, they did not have the benefit of hard information when making their case before the other interested parties at the meetings.

In the spring of 2006 a committee of leaders from various New England paddling groups began to communicate by email about the possibility of conducting a survey of private boaters, for the purpose of determining their preferences for Dead dam release levels. What follows is the result of their efforts.

II. SURVEY STRATEGY

The survey was conducted from early June through late August 2006. In the three months that the survey was active, 218 paddlers responded. Most people (95%) chose to complete the survey online at the Penobscot Paddle and Chowder Society website, www.paddleandchowder.org. Paddlers were directed to the site by emails sent out to the members of the sponsoring paddling clubs, by a notices on the Northeast Paddlers Message Board (NPMB) and other websites, and by an article in No Umbrella magazine. In addition, two paddling clubs sent out a printed version of the survey to over 300 people. It was hoped that by publicizing the survey on NPMB and in No Umbrella, private boaters not affiliated with paddling clubs would have a chance to voice their opinions.

III. CONSTRAINTS INFLUENCING DEAD RIVER RELEASES

Over the last several years, FPL Energy has been in the process of applying to the Federal Energy Regulatory Commission (FERC) for a new 30-year license of the Long Falls dam on Flagstaff Lake. A number of constituencies have weighed in with their concerns during this process, among them the Town of Eustis and Flagstaff Lake camp owners (who wish to maintain high lake levels in the summer), fishermen (who don't want to see very low flows that threaten to leave spawning beds high and dry), and boaters and rafters (who want lots of water, and often). Although this license has not yet received final approval, FPL has begun to abide by some of its terms, which require, among other things:

1. 18 days of recreational releases annually between 1300 and 7500 cfs.
2. Minimum lake levels as follows: Within 1 foot of "full pool" in June; 2 feet of full pool in July; 3 feet of full pool in August; 4.5 feet of full pool in September.
3. Minimum daily flows of 200 cfs from Long Falls dam.

In a dry year, FPL will have its hands full trying to satisfy the three requirements above, but even in a wet year, private boaters must live with the reality that 18 release days is six days fewer than the

historical average of 24 release days. The table below is a tabulation of the last 10 years of Dead River release schedules, which shows that the number and diversity of release levels is not what it used to be:

TABLE 1
Dead River Release Schedule History, 1997-2006*

Year	Release Level (cfs)								Total Release Days
	1000	1300	1800	2400	3500	5500	6000	7000	
1997	3	4	6	2	1	3	1	2	22
1998	1	5	7	2	2	3	1	2	23
1999	1	7	5	2	1	4	1	2	23
2000	0	12 **	4	2	2	4	1	2	27
2001	0	7	5	3	2	4	1	2	24
2002	0	6	3	6	2	4	1	2	24
2003	0	5	5	4	3	4	1	2	24
2004***	0	5	5	4	3	4	1	2	24
2005	0	5 **	2	2	3	4	1	2	19
2006	0	3	3	2	3	4	1	2	18

* Flow is sometimes reduced to 1300 or 1800 cfs in the afternoon after a high-level release in the morning. These afternoon flow adjustments are not represented in the table above.

** Whitewater Open Canoe National Championships held

*** Six releases cancelled due to lack of rain: 3 @ 1300 cfs, 3 @ 1800cfs

When six releases were deleted in going from 24 to 18 annual releases, they were all of 1300, 1800, and 2400 cfs levels. To find out whether these were the levels that should have been deleted (from a private boater perspective) was one primary goal of the survey. As you will see from the survey results, the answer depends on whether you paddle a canoe or kayak.

IV. SURVEY RESULTS

The survey questions are repeated in order below, with responses presented in the form of bar graphs. Comments have been made to clarify and highlight the data where appropriate.

QUESTION 1. Affiliations: (check any that apply):

- Not a member of any paddling organization _____
- AMC (please write in the chapter you belong to) _____
- American Whitewater Affiliation _____
- Kayak and Canoe Club of New York _____
- Maine Canoe and Kayak Racing Organization _____
- Merrimack Valley Paddlers _____
- Mount Washington Valley Paddlers _____
- Penobscot Paddle and Chowder Society _____
- Vermont Paddlers Club _____
- Other _____

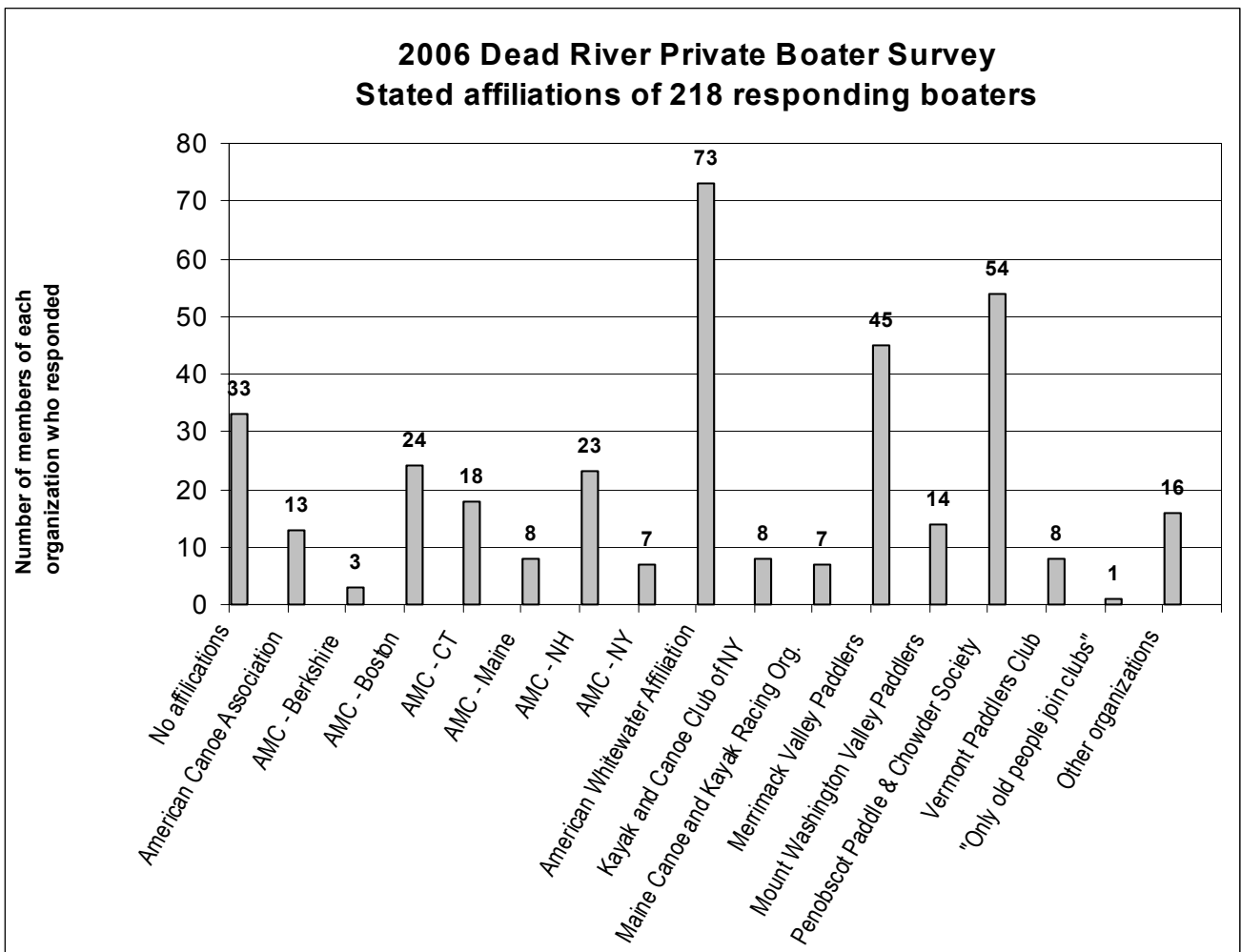


Figure 1

QUESTION 2. On the Dead River, I usually paddle a:

Solo open canoe

Tandem open canoe

Decked canoe (C-1)

Kayak

Other

The majority (60%) of respondents, as one would expect, paddle kayaks. Solo and tandem canoeists made up 30%, with the remaining 10% consisting of private rafts, duckies, shredders, and C-1's.

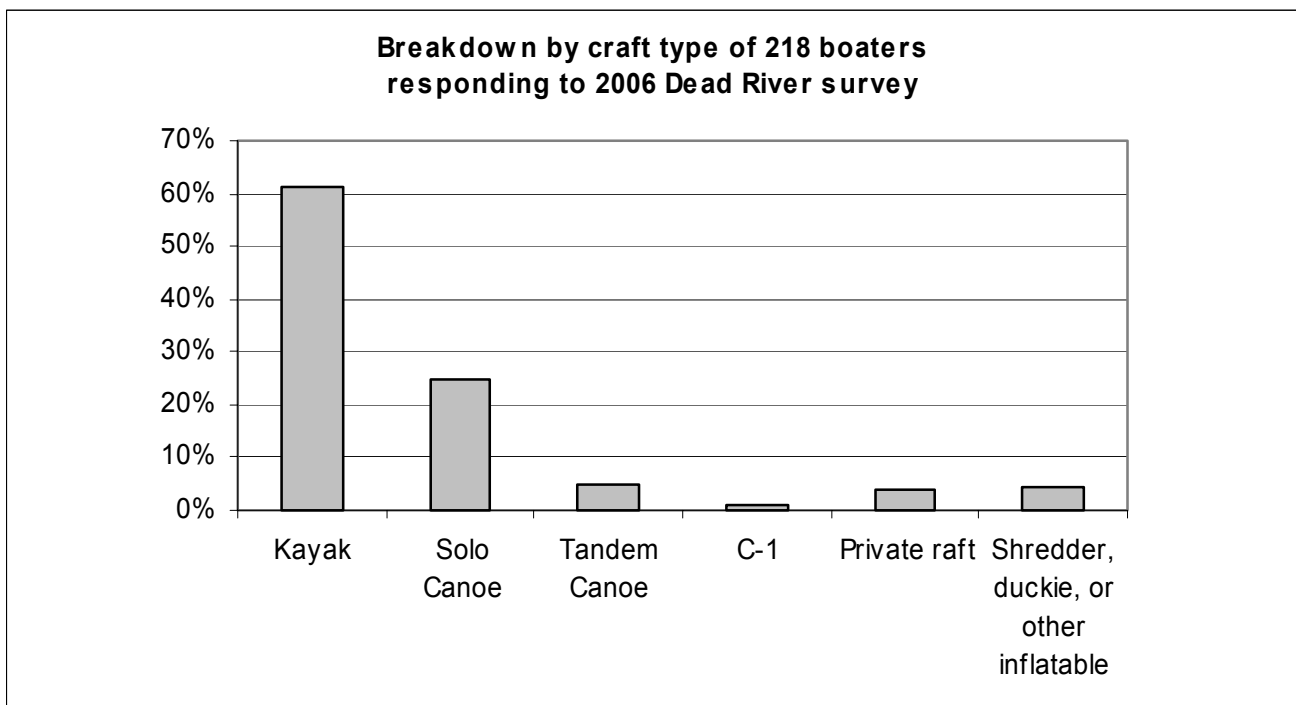
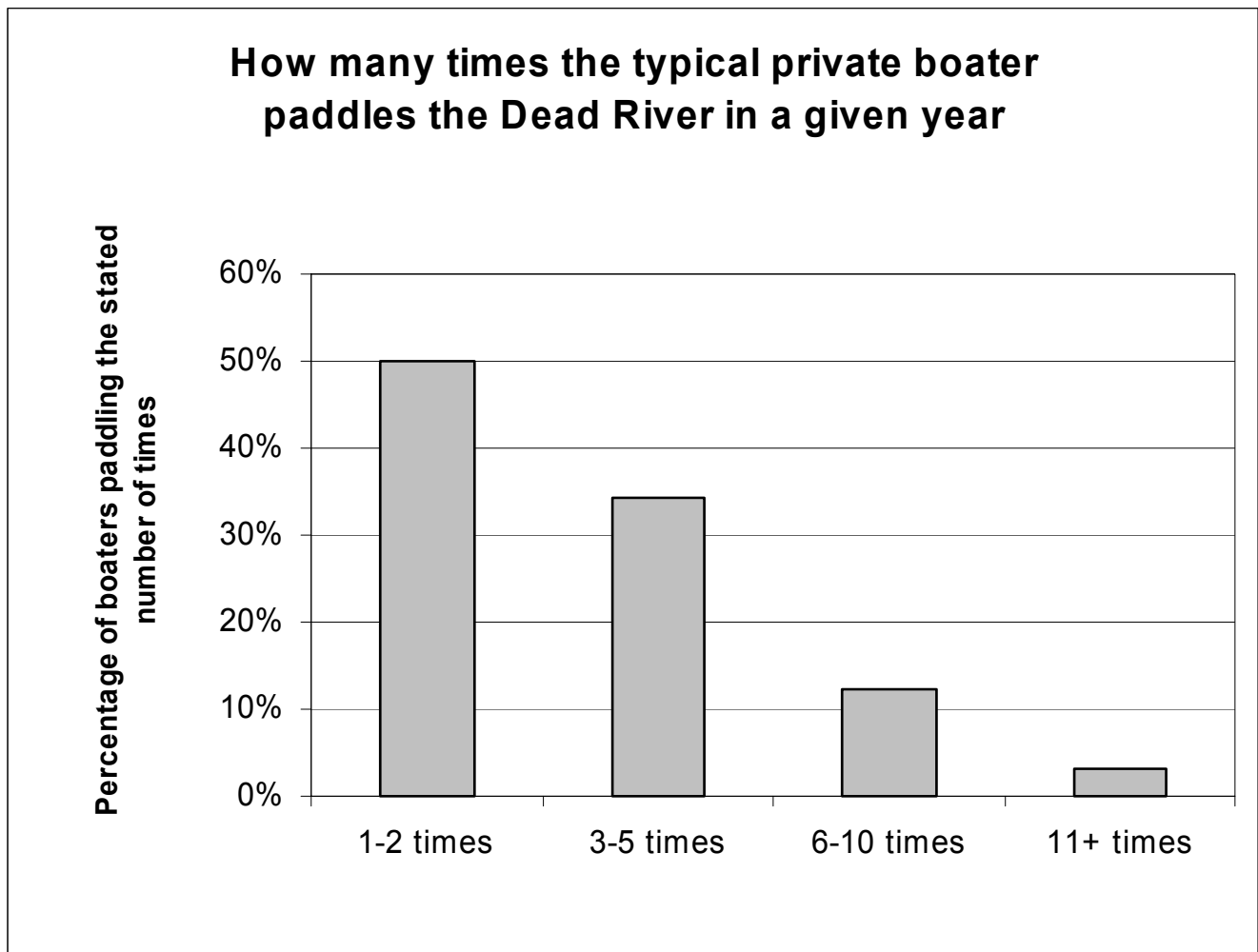


Figure 2

QUESTION 3. In a typical year, I paddle the Dead River

- 0 times
- 1 or 2 times
- 3 to 6 times
- 5 to 10 times
- 11 or more times

**Figure 3**

QUESTION 4. Rank your preference of release levels from 1 to 6. Do not leave any blank.

1300 cfs
1800 cfs
2400 cfs
3500 cfs
5500 cfs
7000 cfs

The data from this question could be looked at in a number of ways, but for the sake of simplicity, only the number 1 and number 6 rankings are analyzed here. **Figure 4.1** shows the percentage of respondents who ranked a given release level as “1”. This bar chart indicates that 3500 cfs is the most popular level, followed closely by 5500 and 2400.

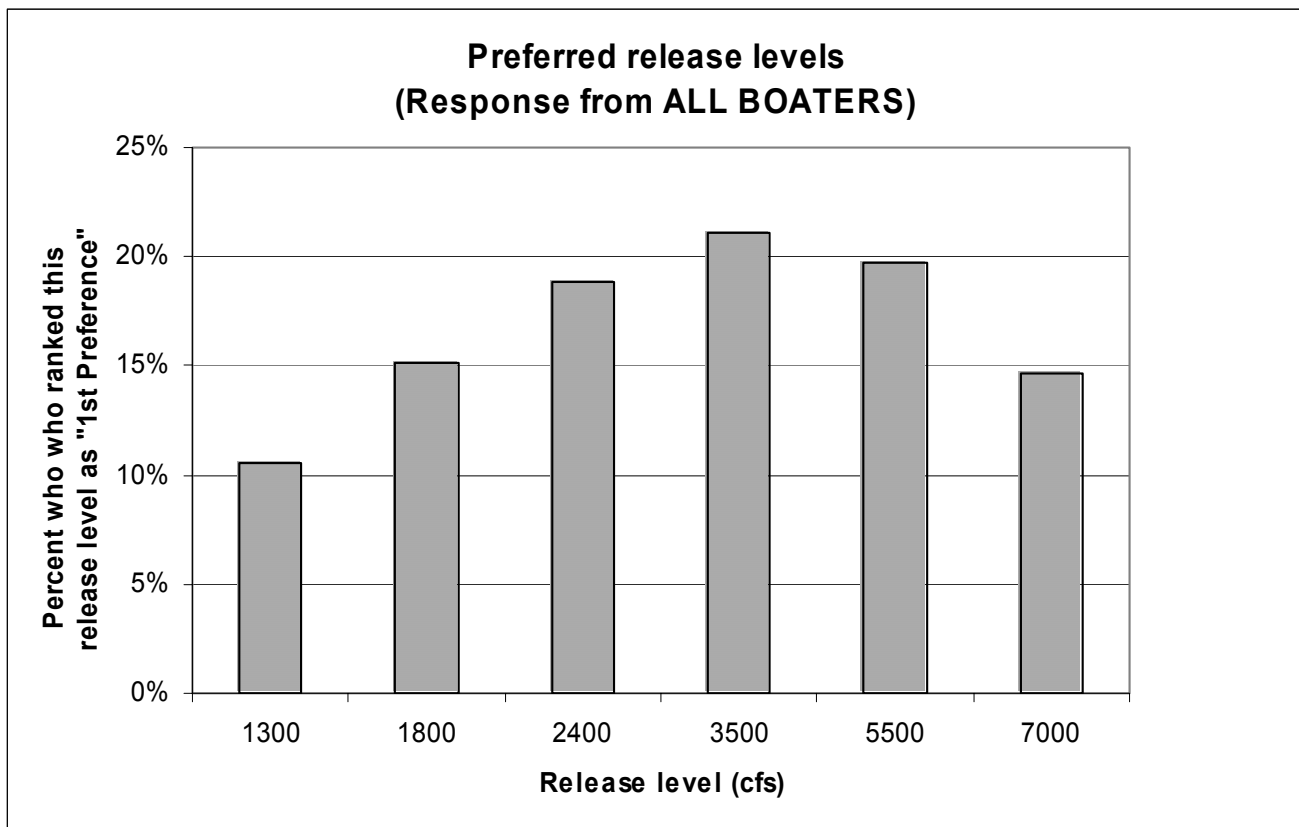


Figure 4.1

Figure 4.2 takes the same data set and breaks it into two groups – kayakers and canoeists (these two groups account for 90% of all responses). Here the contrast in preferences between these two types of boaters is striking. For example, although the most popular level overall is 3500 cfs, only 6% of canoeists responded that 3500 was their first choice. Conversely, the most popular level with canoeists, 1800 cfs, is preferred by only 6% of kayakers.

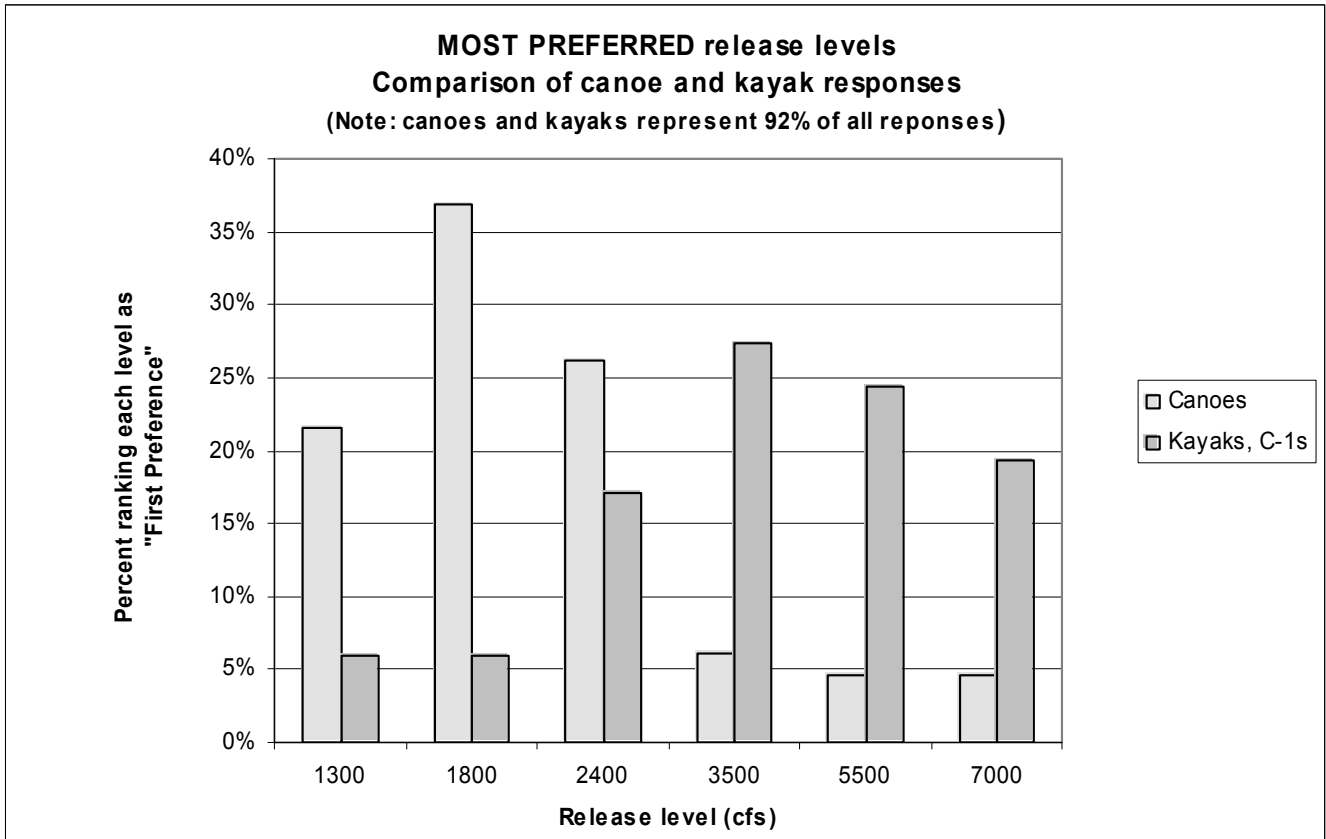


Figure 4.2

The data from Question 4 can also be used to create bar graphs of the least popular release levels, by looking at the percentages of respondents who ranked a given level as “6”. **Figure 4.3** clearly shows that the lowest (1300) and highest (7000) release levels are almost equally unpopular among all boaters. **Figure 4.4**, which compares the data from kayakers and canoeists, again shows that averages do not tell the full story. While fully 65% of kayakers ranked 1300 cfs as their least preferred level, only 15% of canoeists felt similarly.

The four charts which present the data from Question 4 make it clear how difficult it will be to reconcile the desires of kayakers and canoeists with the same release schedule.

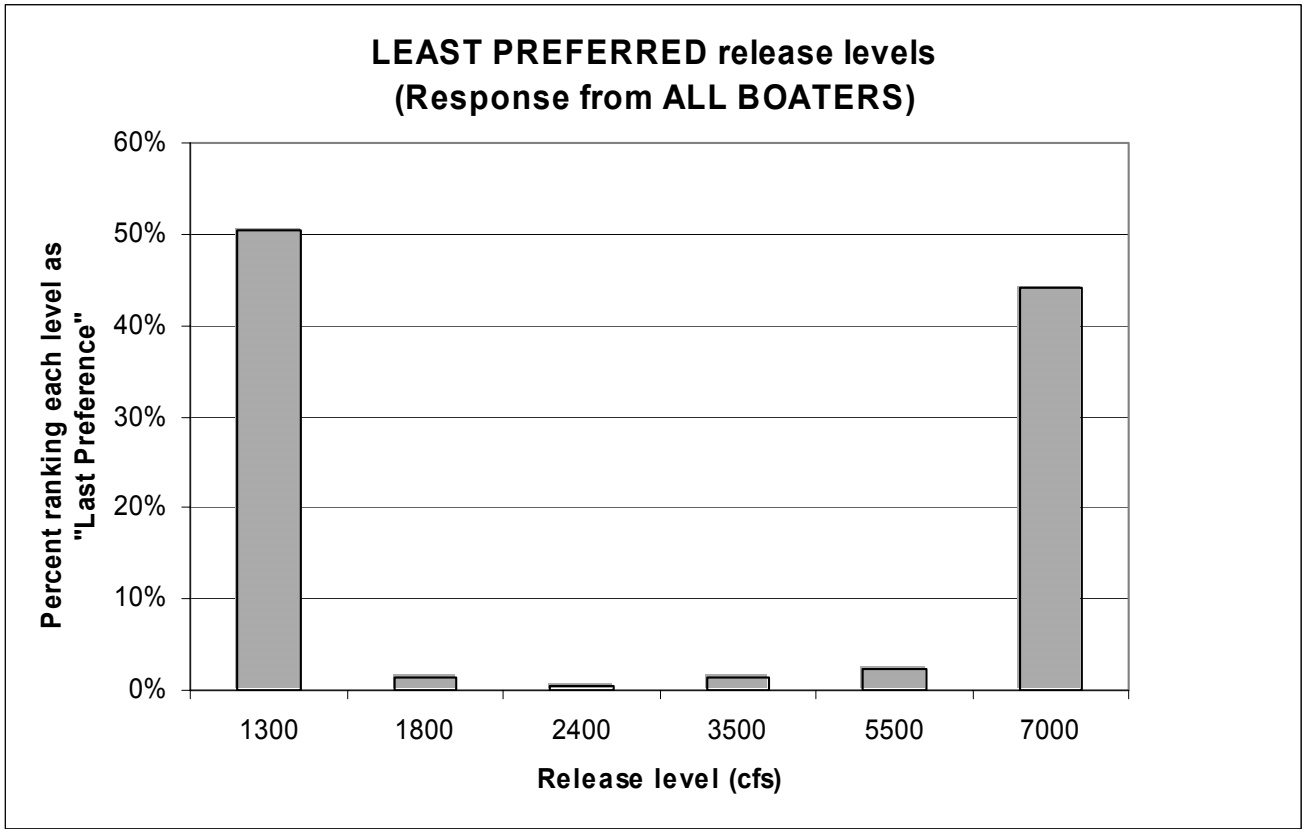


Figure 4.3

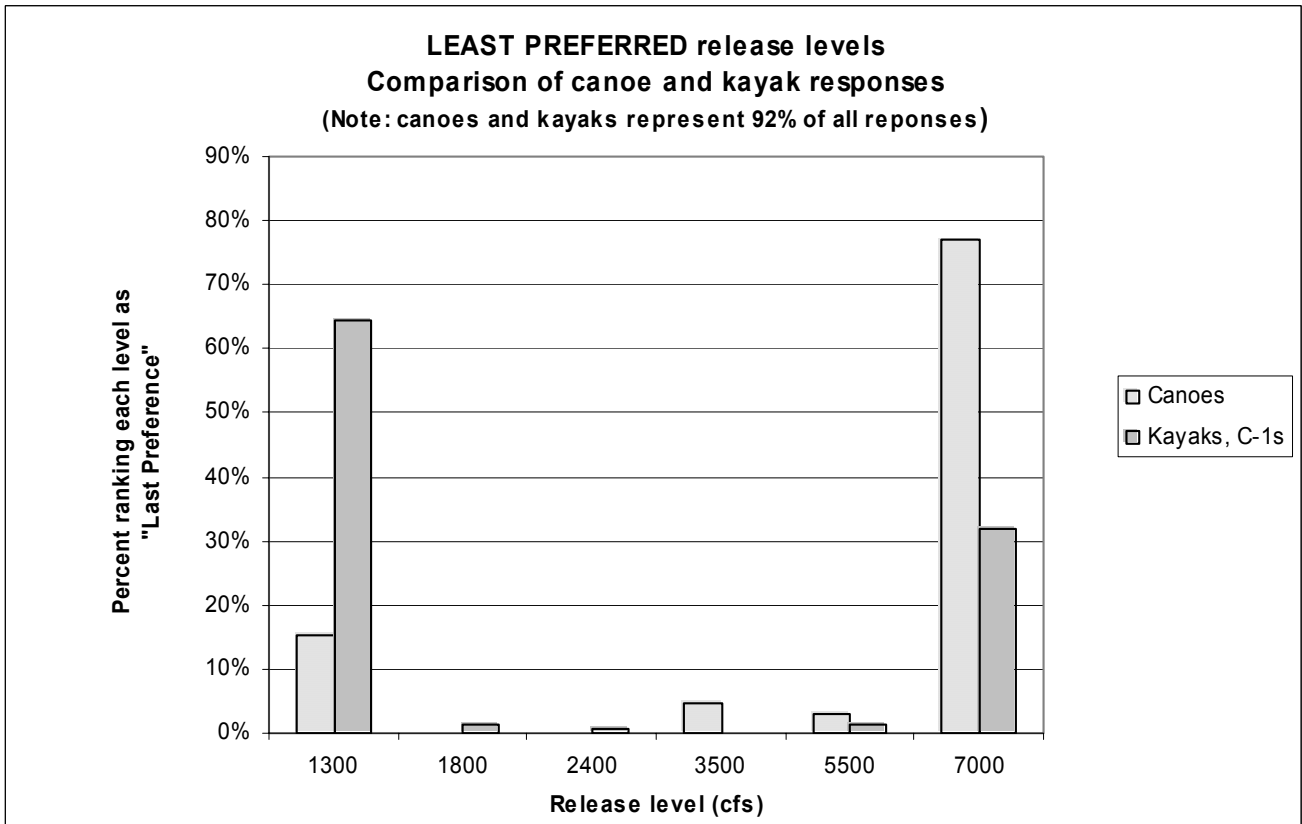


Figure 4.4

QUESTION 5. Are there levels that you do not normally paddle, either because they are too challenging or not challenging enough? (Check all that apply.)

1300 cfs
 1800 cfs
 2400 cfs
 3500 cfs
 5500 cfs
 7000 cfs

Again, on the basis of *Figure 5.1*, one can conclude that the 2400 and 3500 cfs levels exclude the fewest number of boaters from enjoying the Dead. (One can assume that people not paddling 1300 think it is too easy, and those not paddling 7000 find it too hard.)

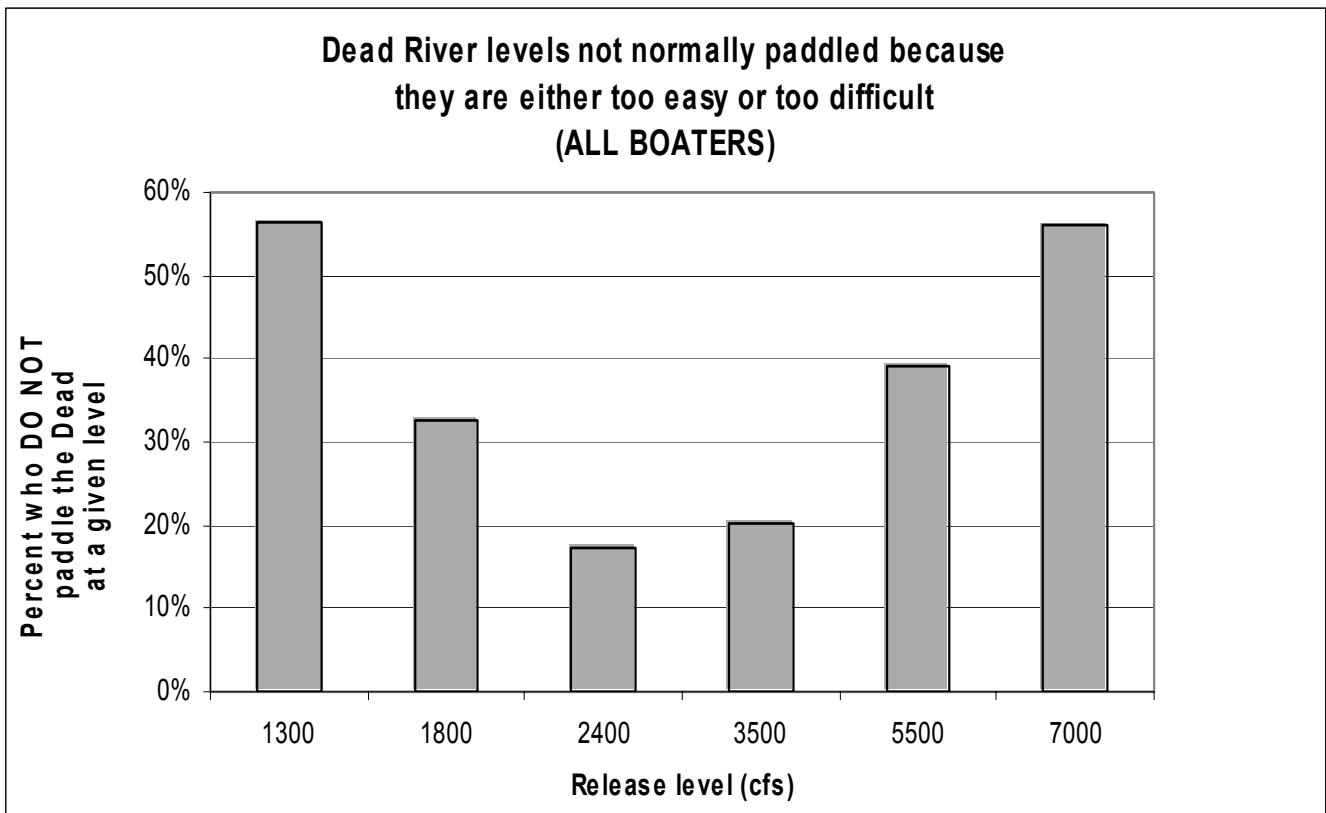


Figure 5.1

Figure 5.2 looks again at the two primary groups, kayakers and canoes. This graph tells us that fully 70% of canoeists do not paddle levels of 5500 cfs or above. By the same token, some 65% of kayakers will not paddle the Dead at 1300 cfs because it is too easy. Yet a review of Table 1 at the beginning of this report shows that only 3 of the 18 Dead releases in 2006 were 1300 cfs (17%). Seven of the 18 releases were at 5500 cfs or above (39%). In other words, 70% of canoeists are being excluded from the Dead almost 40% of the time.

Granted, canoeists are outnumbered by kayakers almost 2-to-1 in this survey. But, to look at the point another way: **Figure 5.1** shows that almost 40% of all paddlers do not paddle the Dead at 5500 cfs or above, the release level that occurs 40% of the time.

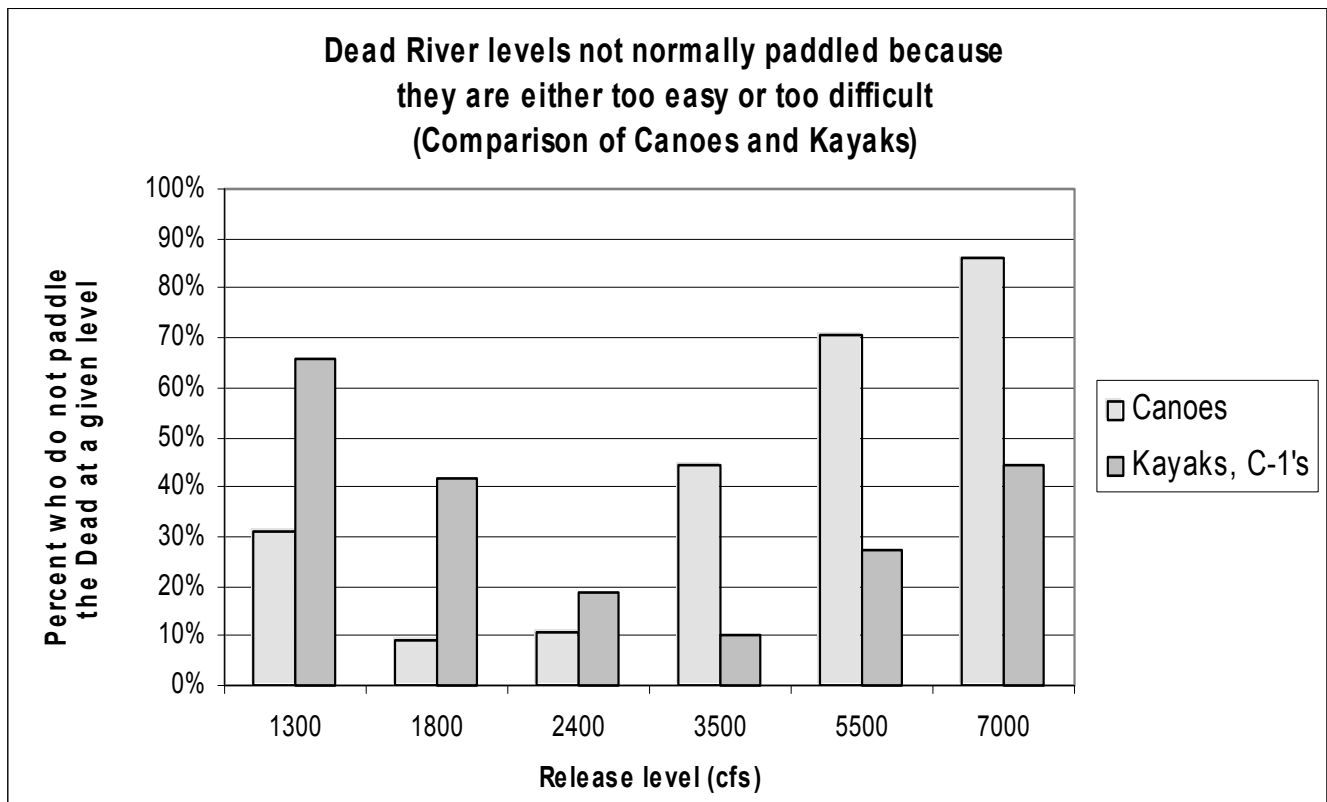


Figure 5.2

While **Figure 5.1** seems to put the 1300 and 7000 release levels in the same league of “undesirable,” it is worth pointing out a very important reason that 1300 should be afforded special consideration: It is the most user-friendly level for beginners. There simply must be accommodations made to allow new people to safely cut their teeth in the sports of whitewater kayaking and canoeing. Canoeing, especially, has a steeper learning curve and requires a slower progression to the more challenging levels. And while many people feel that 1300 is harder because of the number of rocks to dodge, it is undeniably the least “pushy” level, and the one in which beginning boaters are most comfortable.

QUESTION 6. After a higher level release in the morning, the flow level at the dam is often dropped to 1300 or 1800 cfs for the afternoon, in an attempt to give Class II-III boaters more paddling opportunities. How many times did you paddle an afternoon Dead release in 2005?

At previous release scheduling meetings, private boater representatives had protested that when the Dead schedule went from 24 to 18 releases in 2005, only the lower level releases were deleted (see *Table 1* at the beginning of this report.) The response from the commercial interests present was that the afternoon releases adequately addressed the need for 1300 and 1800 release levels. With no hard data to support the anecdotal observation that the afternoon releases were not really that useful, the private boaters backed down (but, vowed to come back to the matter with data in hand at another time).

Figure 6.1 clearly shows what had been surmised, which is that the afternoon releases are not heavily used:

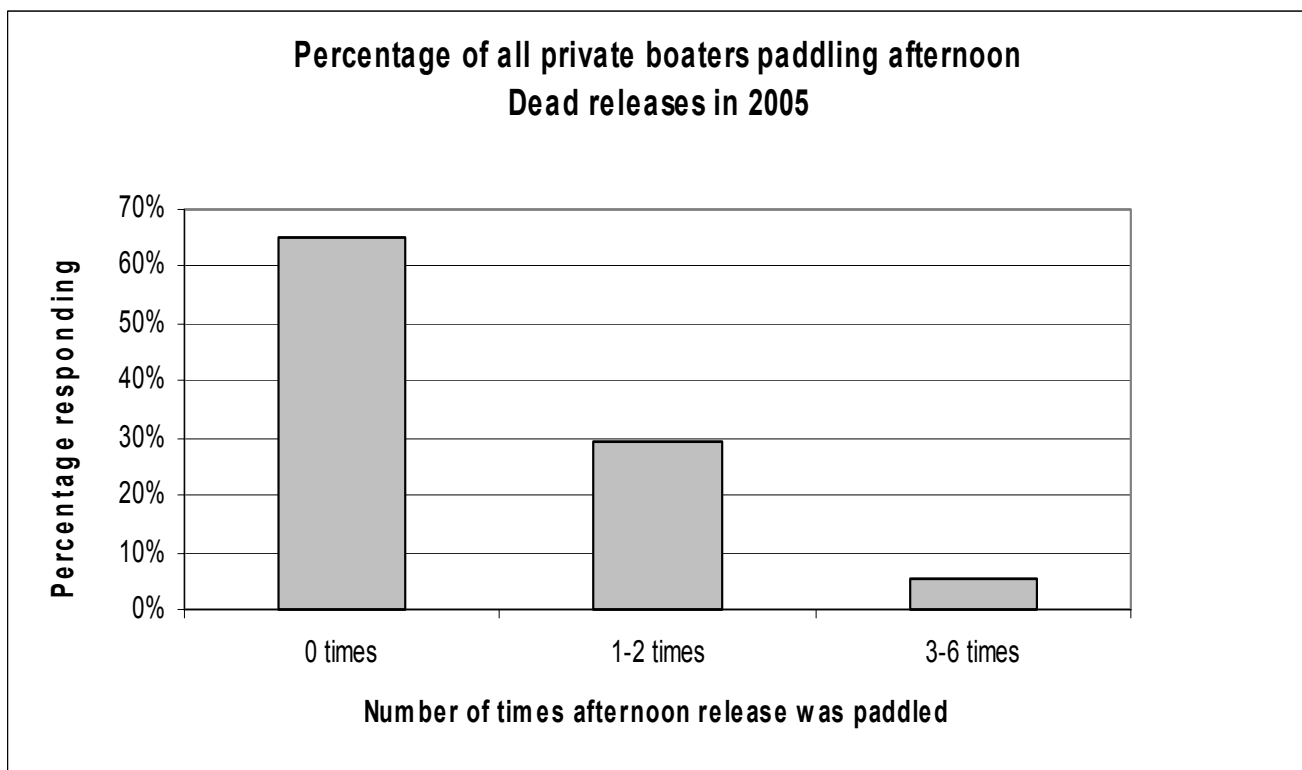


Figure 6.1

Figure 6.2 shows why the afternoon releases are not popular. If you put in at Spencer Stream before 1:30 or 2:00 PM, the water will not have dropped completely to the advertised 1300 or 1800 cfs level. And 2:00 PM is simply too late in the day to start a Dead run which can last anywhere from 4-6 hours.

Figure 6.3 is heartening – it shows that even though most people don't use the afternoon releases, they support the needs of their fellow boaters who prefer low release levels. However, it is clear that afternoon releases are a poor substitute for the real thing, and we should not delude ourselves by thinking that they truly satisfy the needs of Class I-III boaters.

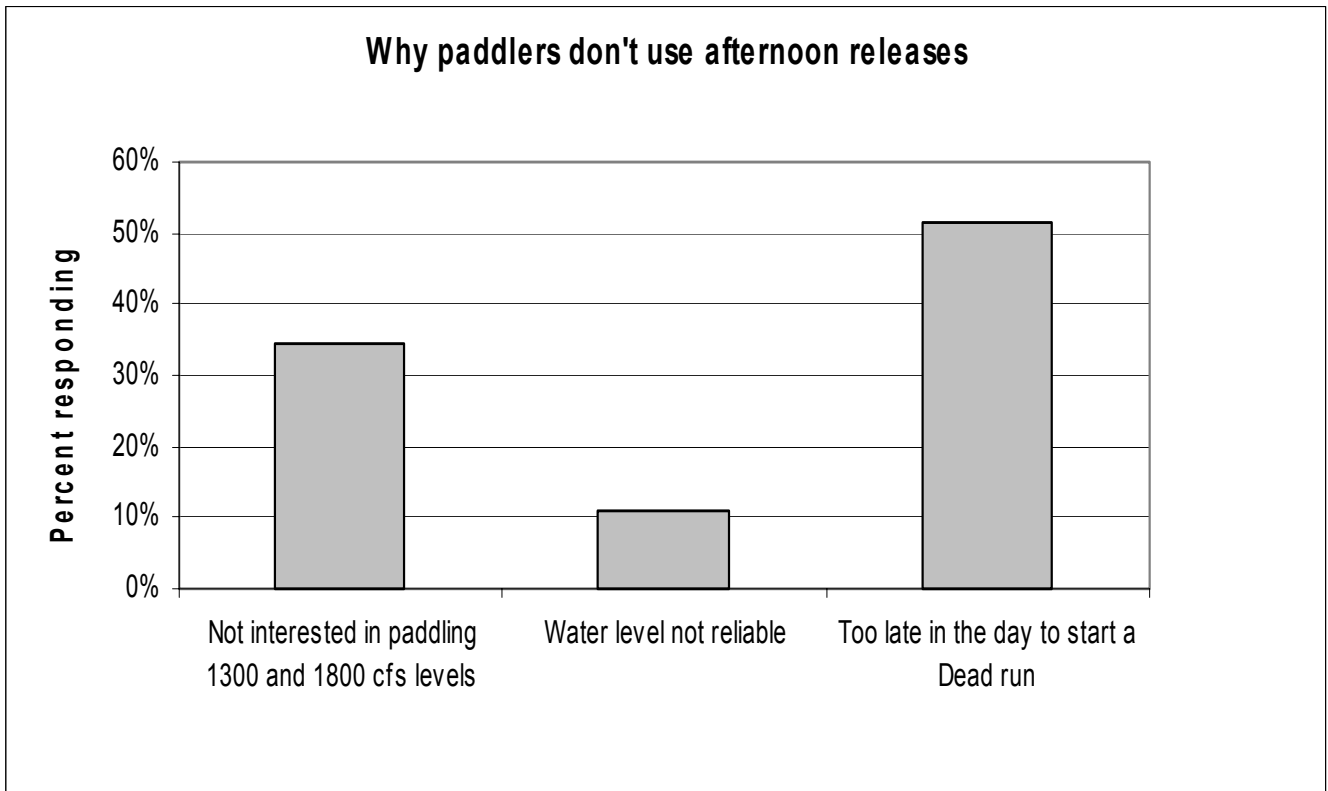


Figure 6.2

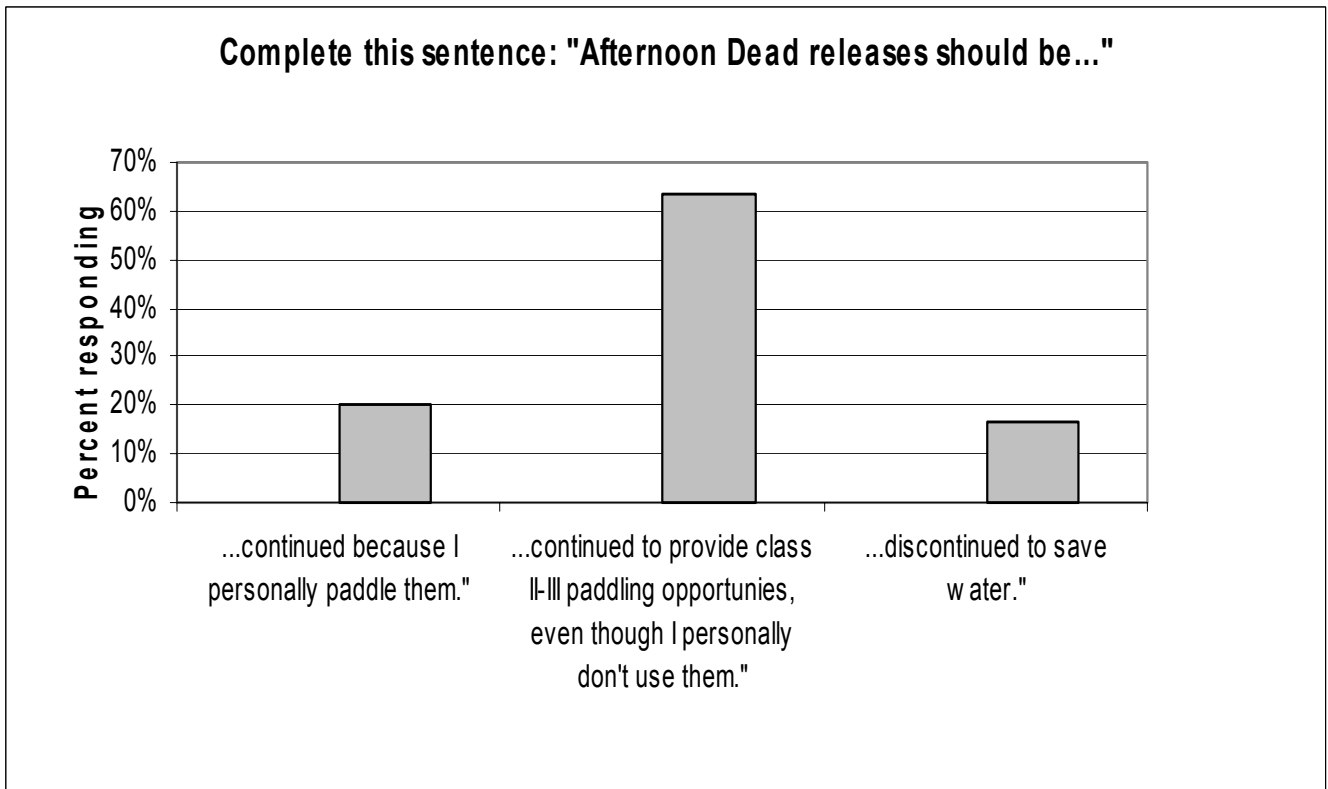


Figure 6.3

QUESTION 7. The pending dam license requires only 18 release dates per year. This means that, for example, if you add another 1800 cfs release to the schedule you must delete a release of a different level. If you were given the opportunity to change just one scheduled release, what change would you make?

I'd delete one _____ cfs release, and add one _____ cfs release

This question is perhaps most useful as we seek to create a better Dead release schedule. *Figure 7.1* shows that only 11% of all boaters would leave the schedule just the way it was in 2006. Either a 1300 or 7000 cfs release would be eliminated by 75% of respondents, while additional releases of 1800, 2400, and 3500 would please the most people.

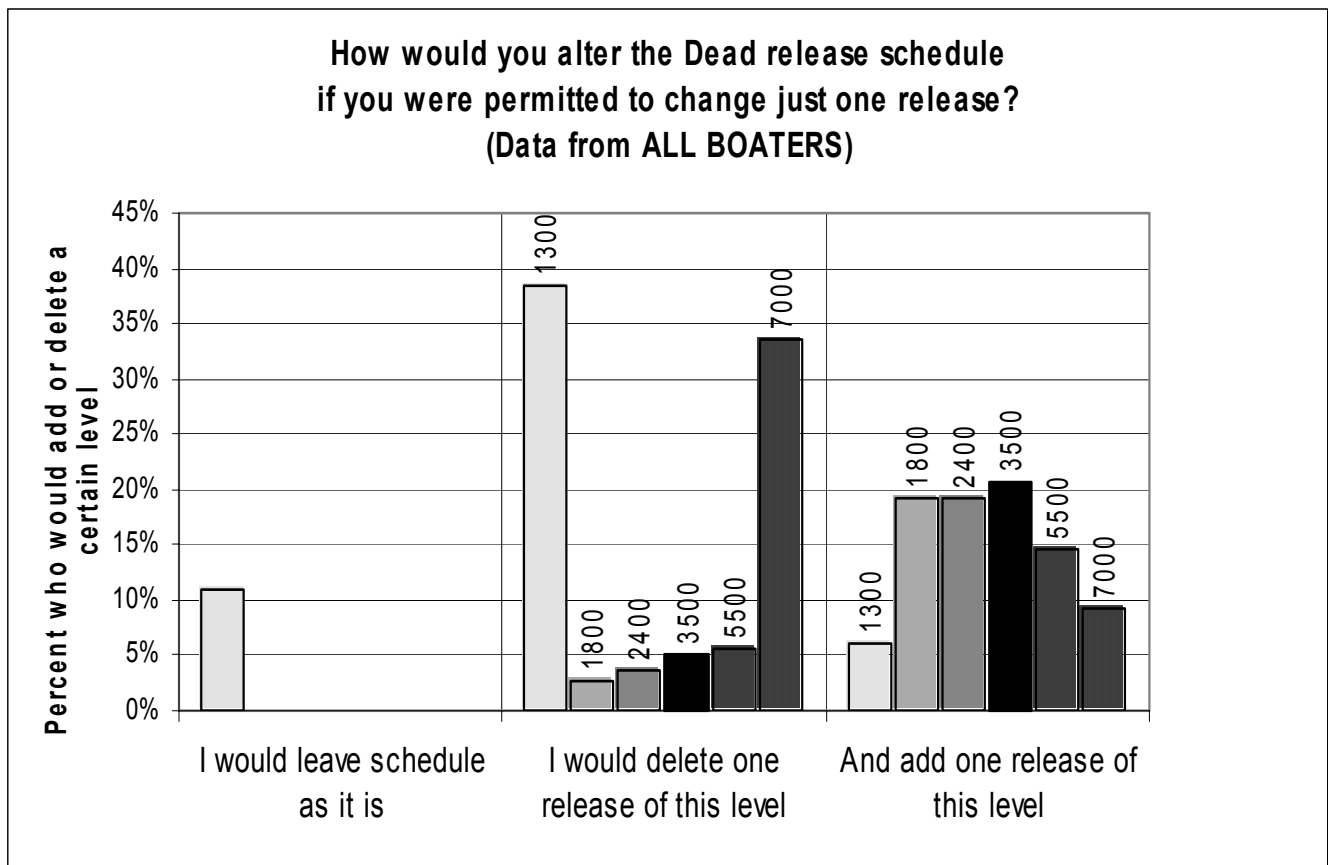


Figure 7.1

As one would expect, a look at the data broken down into kayakers and canoeists shows the differing desires of those two groups. *Figures 7.2* and *7.3* show that in general, kayakers are more satisfied than canoeists. Only 4% of canoeists would leave the schedule as it is, while 15% of kayakers are happy with the status quo. Both groups have significant numbers who would do away with either a 1300 or 7000 cfs release, and significant numbers who would add either an 1800, 2400, or 3500 cfs release. The common ground seems to be 2400 cfs.

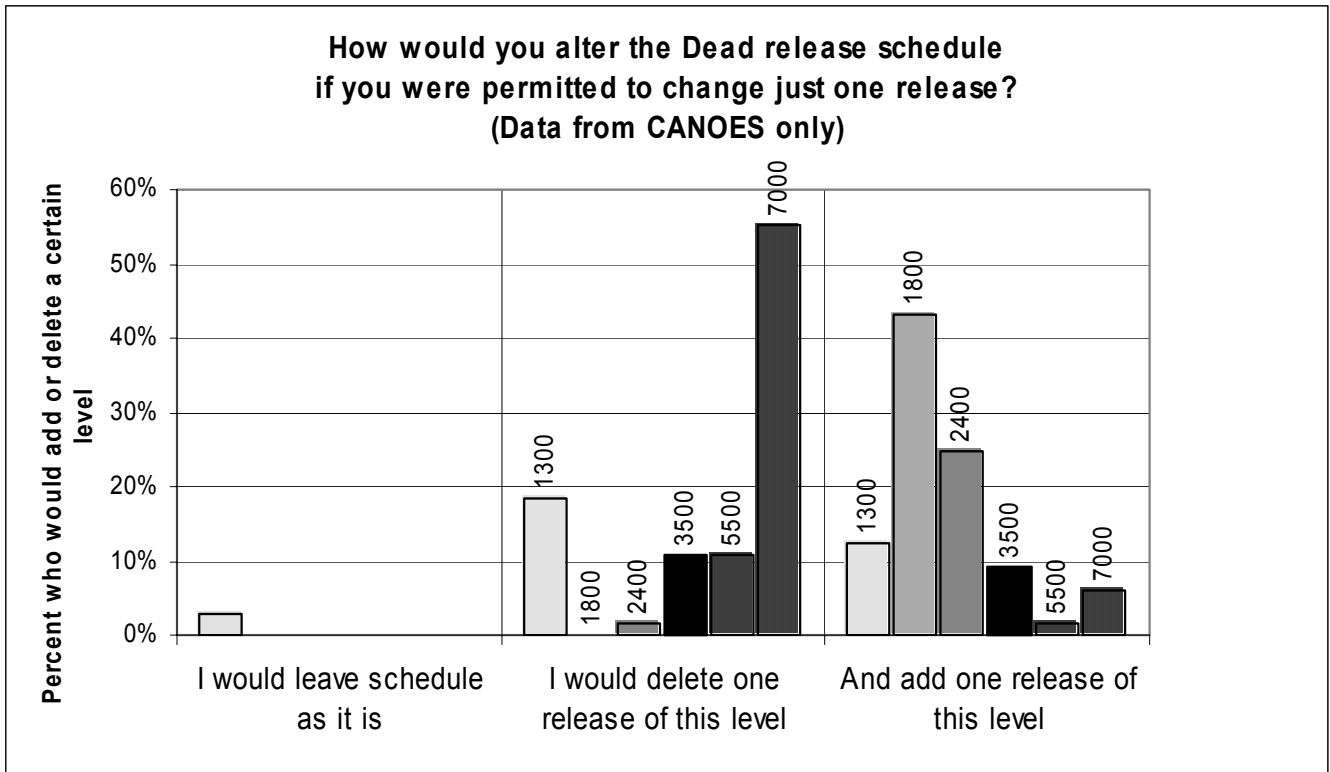


Figure 7.2

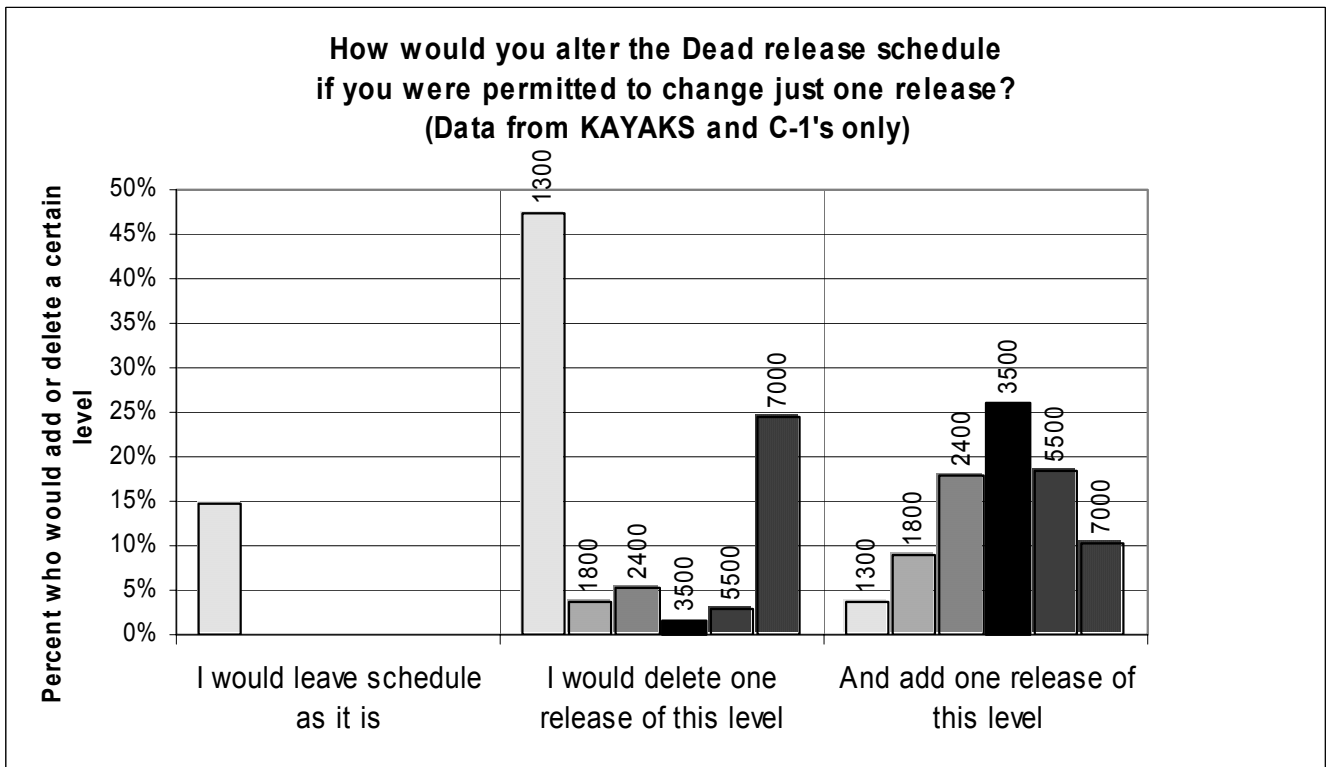


Figure 7.3

V. RECOMMENDATIONS FOR THE 2007 RELEASE SCHEDULE

Why the schedule looks like it does now. The last several years of Dead River releases are shown in *Table 2*. 2004 was the last year that the historical average of 24-26 annual releases was scheduled. Halfway through the summer of 2004, an emergency meeting was called by FPL Energy and Kennebec Water Power Company, where they explained that due to dry weather, there would not be enough water to satisfy the schedule as it was laid out. Those in attendance at the meeting decided to cut out six releases of 1300, 1800, and 2400 cfs levels.

The next year, FPL and Kennebec Water Power Company began to abide by the 18-20 releases specified by the new license. The 2005 schedule picked up where 2004 left off – the precedent had been set – and efforts by private boaters to argue for the reinstatement of some of the low-level releases were not successful.

Table 2

Year	Release Level (cfs)							Total Release Days
	1300	1800	2400	3500	5500	6000	7000	
2004 original	5	5	4	3	4	1	2	24
2004 revised**	2	2	4	3	4	1	2	18
2005	5*	2	2	3	4	1	2	19
2006	3	3	2	3	4	1	2	18

*Open canoe nationals held, which need 1300 cfs releases

** Six releases cancelled due to lack of rain: 3 @ 1300 cfs, 3 @ 1800cfs

Table 2 has been highlighted in yellow to make clear the crux of this tale, which is that six releases of 1300-2400 cfs, previously and historically available to boaters, have been lost. This significant change to the nature of the schedule was made with very little input from private boaters, without the benefit of data on Dead River user preference, at an emergency meeting in 2004 that was not widely publicized or attended. Simple inertia insured that the decisions made there carried on into the future.

Rationale for future Dead release schedules. At the 2005 and 2006 scheduling meetings, private boater representatives called for an across-the-board reduction in all release levels as the “fair” way to get the number of annual releases down to 18 from 24. This “shared pain” approach would result in a schedule as shown in the second row of *Table 3*.

Using the ultimate fairness of the “shared pain” schedule as a starting point, we can make some adjustments based on what was learned from the Dead Survey. Some of the salient points gathered from the survey and discussed earlier in the report are reviewed below:

1. 3500 cfs is the most popular level among all boaters (*Figure 4.1*).
2. Canoes prefer the lower 1800 and 2400 levels, with a significant number paddling 1300 levels (*Figure 4.2*).
3. 1300 cfs and 7000 cfs release levels are least popular among all boaters (*Fig 4.3*).
4. 1300 cfs has special value as a “learning level”, however.
5. The difficulty of paddling high release levels (5500 and up) effectively excludes 70% of canoeists and 40% of all paddlers from using the Dead (*Question 5*).

6. Afternoon releases, although useful to some, are not a comparable paddling opportunity to morning releases (*Figs 6.1 and 6.2*).
7. Overwhelming majorities would delete either a 1300 or 7000 release from the schedule if given a chance (*Fig 7.1*). In its place, the majority of canoeists would add an 1800 release and kayakers a 3500 release.

Two other considerations, although not part of the survey, are worth mentioning:

1. The Dead River at low release levels is one of the only Class I-III paddling opportunities in Maine that is available during the summer months.
2. Several dam-controlled runs of Class III-V difficulty occur elsewhere in Maine during the summer, giving more accomplished paddlers ample opportunity to paddle.

Based on the two lists above, a reasonable proposed schedule would look like the bottom row of *Table 3*.

Table 3
Proposed Release Schedules

	Release level (cfs)							Total Release Days
	1300	1800	2400	3500	5500	6000	7000	
Historical average	5	5	4	3	4	1	2	24
"Shared pain schedule"	4	4	3	2	3	1	1	18
2006 schedule	3	3	2	3	4	1	2	18
Proposed based on survey data	2	4	3	4	3	1	1	18

To summarize the rationale behind the proposed schedule above:

1. All levels are reduced from their historical averages, except 3500 cfs which is ranked in *Fig 4.1* as the most popular level among all boaters and is increased by one from past schedules.
2. The least popular level on average, 1300 cfs, is reduced by three from historical averages and by one from the 2005 and 2006 schedules. Afternoon releases can in part make up for this loss.
3. The number of commercially viable releases (i.e., 3500 cfs and up) is decreased from a historical average of 10 per year to 9.
4. An 1800 release is added from 2006 in deference to the data in *Fig 7.2*. A 2400 release is added as a compromise which is satisfactory to both canoes and kayaks.
5. The afternoon releases, which consume relatively little water, should be continued to provide more Class I-III opportunities.

One more possibility to think about. For the sake of simplicity, this report has stated in several places that the FERC license for Long Falls Dam specifies 18 releases. The license actually states that "...the applicant shall provide 18 to 20 days of flow releases annually between 1300 cfs and 7500 cfs..." It is the position of the FPL Energy and the Kennebec Water Power company that they will offer only 18 because of the likelihood that there will not be enough water to satisfy all the regulations of the license. This is actually a rational and understandable position, given the potential aggravation of having to announce the cancellation of several scheduled releases due to lack of water.

But this committee believes that 20 releases could be offered, at little public relations risk to the dam operator, if two releases were clearly and exclusively promoted as “*Provisional Releases Subject to Cancellation.*” Paddling clubs, websites, and other venues can do a good job of informing the private boaters as to whether the releases will take place or not. (We have already taken pains to educate boaters about the constraints of FPL’s license which limit their ability to provide recreational releases.) Part of the reason that this committee is willing to propose the schedule in **Table 3** above is that an additional 1300 and 1800 cfs release, over and above the 18 shown in the table, could be offered as Provisional Releases.

The releases could be scheduled late in the summer, when the dam operator would have a clear picture of whether or not the various obligations of the license can be met. Further, these releases of only 1300 and 1800 cfs, ending at 11 AM, would require relatively little water (see **Appendix –Water Use Comparison of Various Release Levels**). If the Provision Releases were to be scheduled over Labor Day weekend, with a low-level afternoon release after the traditional Sunday 5500 release, Class I-III boaters would have an opportunity for a three-day weekend of boating.

The proposed 2007 Dead release schedule. *Table 4* on the next page shows what a proposed schedule with Provisional Releases might look like. A priority is given to scheduling comparable release levels on the same weekend (e.g. 1800 Sat/1300 Sun or 2400 Sat/3500 Sun) so that people can count on being able to enjoy the Dead twice in one weekend and will have more incentive to travel long distances.

This committee hopes that the proposed schedule will be a useful tool for the annual discussions on the Dead release schedule. Obviously, the details, dates, cutoff times, etc. of this proposed schedule are negotiable. We firmly believe, however, that all the constituents involved must share the pain of the reduction of the number of releases from what was historically available.

2007 DEAD RIVER RELEASE SCHEDULE
As proposed by Dead River Private Boater Survey Committee

Day	Date		Morning Release	Afternoon Release
Saturday	12-May		7000	
Saturday	26-May		1800	
Sunday	27-May		5500	1800
Saturday	2-Jun		3500	1800
Saturday	9-Jun		5500	1800
Saturday	16-Jun		2400	
Sunday	17-Jun		3500	
Saturday	30-Jun		1800	1300
Sunday	1-Jul		1300	
Saturday	28-Jul		2400	1300
Sunday	29-Jul		1800	
Saturday	11-Aug		2400	
Sunday	12-Aug		3500	
Saturday	18-Aug		1800	1300
Sunday	19-Aug		1300	
Saturday	1-Sep	PROVISIONAL	1800	
Sunday	2-Sep		5500	1800
Monday (Labor Day)	3-Sep	PROVISIONAL	1300	
Saturday	15-Sep		3500	
Saturday	6-Oct	Full open up to	6000	

Notes:

- 1 On dates with morning releases only: Flow at dam is cut at 12 noon; flow drops at Spencer Stream put-in around 2 PM.
- 2 On dates with both morning and afternoon releases: Flow at dam is dropped at 11:00 AM, with reduced flow reaching Spencer Stream put-in around 1 PM. Flow at dam is cut at 1 PM.
- 3 **PROVISIONAL releases are subject to cancellation based on water levels at Flagstaff Lake.** A judgment as to whether sufficient water exists to support the release will be made one week prior to the release date. For the status of these releases consult www.paddleandchowder.org (or Kennebec Water Power Co, or FPL, or others TBD)

APPENDIX

WATER USE COMPARISON OF VARIOUS RELEASE LEVELS

Compiled by Mike Duclos
9/30/06

Assuming a hypothetical 6 hour constant release at each level and neglecting ramp up and ramp down water use, a calculation was made of the volume of water used for each level. While it is understood that the absolute numbers presented below may not be accurate, the relative relationships between the numbers are valid, and provide useful insight for the management of a finite water resource.

The calculation was made as follows:

$$6 \text{ hours} \times 60 \text{ minutes/hour} \times 60 \text{ seconds/min} = 21,600 \text{ seconds/release day}$$

Multiply number of release seconds by the cubic feet per second flow to obtain total volume for a single day of boating at each release level:

1300 cfs	x	21,600	=	28,080,000	≈	28 mcf
1800 cfs	x	21,600	=	38,880,000	≈	39 mcf
2400 cfs	x	21,600	=	51,840,000	≈	52 mcf
3500 cfs	x	21,600	=	75,600,000	≈	76 mcf
5500 cfs	x	21,600	=	118,800,000	≈	119 mcf
6000 cfs	x	21,600	=	129,600,000	≈	130 mcf
7000 cfs	x	21,600	=	151,200,000	≈	151 mcf

By multiplying the volumes above times the number of days for each release level, an estimate of the total amount of water used by the annual Dead River release schedule can be calculated. In *Table A-1* on the next page, this calculation has been applied to historical and proposed schedules.

The rightmost column of the table lists the total number of release days and the total volume required for the entire annual release schedule. Note that a lower number here increases the probability of “full schedule success,” meaning that all scheduled releases are completed.

Table A-1
Hypothetical Water Volumes Used for Dead River Releases
(m = million cubic feet)

Release schedules discussed on page 17 and in Table 3:	Release level (cfs)							Total Release Days
	1300	1800	2400	3500	5500	6000	7000	Volume Required
Historical average	5 140m	5 195m	4 208m	3 228m	4 476m	1 130m	2 302m	24 1,679m
"Shared pain schedule"	4 112m	4 156m	3 156m	2 152m	3 357m	1 130m	1 151m	18 1,187m
2006 schedule	3 84m	3 117m	2 104m	3 228m	4 476m	1 130m	2 302m	18 1,441m
Proposed based on survey data	2 56m	4 156m	3 156m	4 304m	3 357m	1 130m	1 151m	18 1,310m
Proposed 2007	3* 84m	5* 195m	3 156m	4 304m	3 357m	1 130m	1 151m	20 1,377m

*Includes Provisional Releases as discussed in Section V.