

## Proposed Experimental Schedules for Delta Cross Channel Gates

### Goals and constraints

To determine the relationship between the amount of water passed through the DCC and the effects on salinities at Jersey Point and Bacon Island it is important to provide a wide range of experimental conditions. On the other hand, flows are likely to be low at least until next fall and salinities at Collinsville and Jersey Point are likely to be frequent controls on project operations. More open conditions of the DCC gates will help reduce salinity at Jersey Point whereas more closed conditions are likely to help reduce salinity at Collinsville. Salinity requirements in the central delta will ease after August 15.

Factors affecting choice of experimental gate operation schedules are:

Recreational boat traffic is likely to be high through the DCC until after the Labor Day weekend. Hydrodynamic studies would benefit from a complete gate closure for at least four days. Studies of adult salmon upmigration through the delta will be facilitated by a wide range of degrees of closure during October.

Two factors add flexibility to the choice of gate operation:

During low river flow conditions, water passes through the gates almost only during flood tides. Status of the gates during the ebb tides is almost irrelevant to water quality issues, so they can be left open for boal passage during all ebb tides, until fish issues become important. Recreational boaters almost only pass through the DCC during daylight hours. Thus, closure of the gates only during flood tides at night would therefore cut water passage by 50% while having almost no effect on boat traffic.

### Experimental conditions

For water quality and hydrodynamic studies, I propose the following four scenarios of DCC gate operations (numbers in parentheses are the percentages of flow that would be expected to go through the channel relative to the full open condition).

- A. Close gates every nighttime flood and every other daytime flood  
(25% of full open)
- B. Close gates every nighttime flood tide  
(50% of full open)
- C. Close gates for three of every four nighttime flood tides  
(63% of full open)
- D. Close gates for one of every three nighttime flood tides  
(84% of full open)
- E. Close gates every other nighttime flood tide  
(75% of full open)

Of course, since there are not always two flood tides in a day these percentages are approximate. Each condition should be held for three weeks in order to maximize the chance of detecting differences in effect.

Condition A is the only one that should have an impact on boat traffic and is the one most likely to result in salinity compliance problems at Jersey Point. Condition A also provides a greatest deal of contrast to the other conditions and so is supportive of the adult salmon studies. For these reasons it should occur late in the season. Conditions B, C, and D are unlikely to affect recreational boat traffic, and are more likely to provide enough water to achieve both salinity targets.

#### Calendars of gate operations

Water quality studies could begin on two dates: one starting on August 1, 2001 and the other starting on August 15, 2001. In each calendar below I have tried to complete DCC gate manipulations by the second week in November, in order to avoid complications with studies on juvenile migration. However, it may be that juvenile studies could be performed with one of these gate operational conditions. I have also placed the most open conditions in the times of greatest recreational boat traffic. I have also limited the four days of closure to weekdays after Labor Day.

Aug 1-Aug 21	Condition C
Aug 22-Sep 10	Condition D
Sep 11-14	closed
Sep 15-18	open
Sep 19-Oct 16	Condition B
Oct 10-Nov 7	Condition A

This appears to be the best calendar for water quality studies. However, if water quality compliance concerns dictate that studies start after August 15, two calendars are proposed:

Aug 15-Sep 4	Condition D
Sep 5- 24	Condition C
Sep 25-28	closed
Sep 29-30	open
Oct 1-22	Condition B
Oct 23-Nov 12	Condition A

or

Aug. 15-Sept. 17	Condition E
Sept. 18-21	Closed
Sept. 22-23	Open
Sept 24-Oct. 22	Condition B (gives one more week of Cond. B).
Oct 23-Nov. 12	Condition A

The use of conditions C, D, and E before Labor Day is intended to reduce impacts on boating while the use of A and B later in the year provides a large proportional difference (25% vs 50%) in DCC water passage in support of adult migration and may also reduce impacts on early outmigrating spring-run salmon.

Under any calendar, the choice of C before D or of B before A could be made conditional on the salinities at Jersey Point and Collinsville at the start of the experimental periods. Thus, if salinity at Collinsville is controlling project operations on August 15 in the second calendar, project operators might opt to use condition C instead of D or E.