



FISH PASSAGE CENTER

1827 NE 44th Ave., Suite 240, Portland, OR 97213

Phone: (503) 230-4099 Fax: (503) 230-7559

<http://www.fpc.org/>

e-mail us at fpcstaff@fpc.org

MEMORANDUM

TO: Stephen H. Smith

FROM: Jerry McCann

DATE: July 19, 2011

RE: Data Request: Equations for survival, FTT graphs UCL, LCL reaches

In response to your request we are providing the equations for graphs that were sent to you from a presentation to CRITFC earlier in the year. The equations were weighted bivariate regressions of survival or fish travel time and did not include multiple variables or interactions. The regressions were meant to show the relationship between primary environmental variables and survival or fish travel time in the presence of all other variables.

The tables 1 and 2 below show the equations plotted in the graphs. So for example, using table 1 the curve plotted for steelhead survival versus average spill percentage in the reach Rock Island Dam to McNary Dam $\ln(\text{Surv}) = -0.41166 - 0.01078 * \text{WTT}$.

Table 1. Survival equations used in graphs are listed below. In each equation the natural log of survival was regressed against the environmental covariate. The environmental variables were either Average spill percentage (Avg_Spill_Perc) or water transit time (WTT) in the reach.

Species	Reach	Constant	Avg_Spill_Perc	WTT
ST(HW)	RIS to McN	-0.41166		-0.01078
CH1(HW)	RIS to McN	0.46313		-0.16885
CH0(HW)	RIS to McN	0.024141		-0.10766
SO(HW)	RIS to McN	0.264588		-0.08158
ST(HW)	McN to BON	-2.21505	0.04593	
CH1(HW)	McN to BON	-0.95587	0.01705	
ST(HW)	McN to BON	0.46903		-0.1439
CH1(HW)	McN to BON	0.02175		-0.04809

Table 1. Fish travel time equations used in graphs are listed below. In each equation the median fish travel time was regressed against the environmental covariate. The environmental variables were either Average spill percentage (Avg_Spill_Perc) or water transit time (WTT) in the reach.

Species	Reach	Constant	Avg_Spill_Perc	WTT
ST(HW)	RIS to McN	-0.4559		-0.00215
CH1(HW)	RIS to McN	0.19958		-0.09648
CH0(HW)	RIS to McN	-0.64477		-0.01994
SO(HW)	RIS to McN	-0.2756		-0.02974
ST(HW)	McN to BON	14.70755	-0.25689	
CH1(HW)	McN to BON	17.50234	-0.33162	
ST(HW)	McN to BON	-0.44731		0.87098
CH1(HW)	McN to BON	-1.138		0.97018

Abbreviations used in the tables are:

HW	Hatchery and Wild
ST	Steelhead
CH1	Yearling Chinook
CH0	Subyearling Chinook
SO	Sockeye
RIS to McN	Rock Island Dam to McNary Dam
McN to BON	McNary Dam to Bonneville Dam



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DATA REQUEST FORM

Request Taken By: Michele DeHart Date: 7/5/2011

Data Requested By:
 Name: Stephen A. Smith Phone: _____
 Address: _____ Fax: _____
 _____ Email: hunter.smith@comby.com

Data Requested:
WPTT Conversion formulas wells to BON
Fitted Survival versus WTT, Spill proportion plot
equations - for MidC (Ris + Mean) and IOL (Med to BON).
WPTT Calculations

Data Format: Hardcopy Text Excel wordperfect
 Delivery: Mail Email Fax Phone

Comments:
Provided equations in tables. Dave provided
a power point presentation with volumes and fore bay
elevations that could be used for coles. Also Hazard info.

Data Compiled By: Jerry McCann & Dave Benner Date: 7/5/11

Request # 62