



# APPENDIX D

**Appendix D, Table 1**

Release Information and Survival Estimates (Standard Error (SE) in Parentheses) for Acoustically-tagged Salmon during the 2006, 2007, 2008, 2009 and 2010 Vernalis Adaptive Management Program (VAMP) Studies (SJRG 2007, 2008, 2009, 2010 and 2011 and C.M. Holbrook, U.S. Geological Survey, personal communication).

Year	Hatchery of origin of study fish	Run of study fish	Release Date	Release Location	Number Released	Number of receiver sites	HORB	Vernalis Flows during the VAMP period <sup>a</sup>	CVP+SWP Exports during VAMP period <sup>a</sup>	Survival in the south Delta region to six end points: without predator-like detections / all detections (Standard Error in Parentheses)	Survival through the Delta to Jersey Point or Chipps Island (Delta); Route A (SJ route); and Route B (Old River route): without predator-like detections/all detections (Standard Error in Parentheses)
2006	MRH	Fall	8-May	Mossdale	32	5	No	26,220 <sup>b</sup> / 24,262 <sup>c</sup>	1,559/5,748	Not measured	Not Measured: no receivers at Chipps Island or Jersey Point
			15-May	Mossdale	35						
				Dos Reis	33						
				<b>TOTAL</b>	<b>100</b>						
2007	MRH	Fall	3-May	Durham Ferry	98	10	Yes	3,263	1,486	Not measured	Not Measured: no receivers at Chipps Island or Jersey Point
				Mossdale	99						
			4-May	Bowman Road	99						
				Stockton D/S HORB	100						
				Durham Ferry	99						
			10-May	Durham Ferry	96						
				Mossdale	97						
11-May	Bowman Road	95									
				<b>TOTAL</b>	<b>970</b>						
2008	MRH	Fall	29-Apr	Durham Ferry - Day	144	17	No	3,163	1,520	Not explicitly reported: potentially biased survival estimates	Joint fish and tag survival, premature battery failure may have biased estimates. No predator-type detections removed.  Mossdale to Chipps Island = .06 (0.01) and 0.07 (0.02) for first and second releases, respectively.  Route A = 0.07 (0.02) and 0.10 (0.02) for first and second releases, respectively  Route B = 0.05 ( 0.02) and 0.06 (0.02) for for first and second releases, respectively.
				Durham Ferry - Night	138						
			1-May	Stockton - Day	93						
				Stockton-night	94						
			6-May	Durham Ferry - Day	139						
				Durham Ferry-night	144						
			8-May	Stockton-Day	85						
	Stockton - night	78									
				<b>TOTAL</b>	<b>915</b>						
2009	FRH	Fall/ spring hybrids	22-Apr	Durham Ferry	136	14	Non-physical barrier tested	2,260	1,990	Mossdale to 6 end points = 0.06 (0.01) / 0.34 (0.03) based on release groups 3-7  Partial Route A (SJ route) = 0.05 ( 0.02) / 0.10 (0.02) for release groups 3-6  Partial Route B (Old River = 0.08 ( 0.02) / 0.58 (0.06)	Not Measured: no receivers at Chipps Island or Jersey Point
			25-Apr	Durham Ferry	136						
			29-Apr	Durham Ferry	135						
			2-May	Durham Ferry	136						
6-May	Durham Ferry	136									
9-May	Durham Ferry	133									
13-May	Durham Ferry	135									
				<b>TOTAL</b>	<b>947</b>						

**Appendix D, Table 1 (continued)**

Release Information and Survival Estimates (Standard Error (SE) in Parentheses) for Acoustically-tagged Salmon during the 2006, 2007, 2008, 2009 and 2010 Vernalis Adaptive Management Program (VAMP) Studies (SJRG 2007, 2008, 2009, 2010 and 2011 and C.M. Holbrook, U.S. Geological Survey, personal communication).

Year	Hatchery of origin of study fish	Run of study fish	Release Date	Release Location	Number Released	Number of receiver sites	HORB	Vernalis Flows during the VAMP period <sup>a</sup>	CVP+SWP Exports during VAMP period <sup>a</sup>	Survival in the south Delta region to six end points: without predator-like detections / all detections (Standard Error in Parentheses)	Survival through the Delta to Jersey Point or Chipps Island (Delta); Route A (SJ route); and Route B (Old River route): without predator-like detections/all detections (Standard Error in Parentheses)
2010	MFRH	Fall	26-Apr	Durham Ferry	74	20	Non-physical barrier tested	5,140	1,515	Mossdale to 6 end points = 0.56 (0.03) / 0.79 (0.04)	Mossdale to Chipps Island = 0.05 ( 0.01) / 0.11 (0.01)
			27-Apr	Old River Stockton	36						
			29-Apr	Durham Ferry	74						
			30-Apr	Old River Stockton	36						
			3-May	Durham Ferry	73						
			4-May	Old River Stockton	36						
			6-May	Durham Ferry	70					Partial Route A (SJ route) = 0.32 (0.02) / 0.57 (0.02)	Route A (SJ Route) = 0.04 (0.01) / 0.11 (0.01)
			7-May	Old River Stockton	36						
			10-May	Durham Ferry	71						
			11-May	Old River Stockton	36						
			13-May	Durham Ferry	74						
			14-May	Old River Stockton	35						
			17-May	Durham Ferry	70						
			18-May	Old River Stockton	35						
			<b>TOTAL</b>	<b>1004</b>							

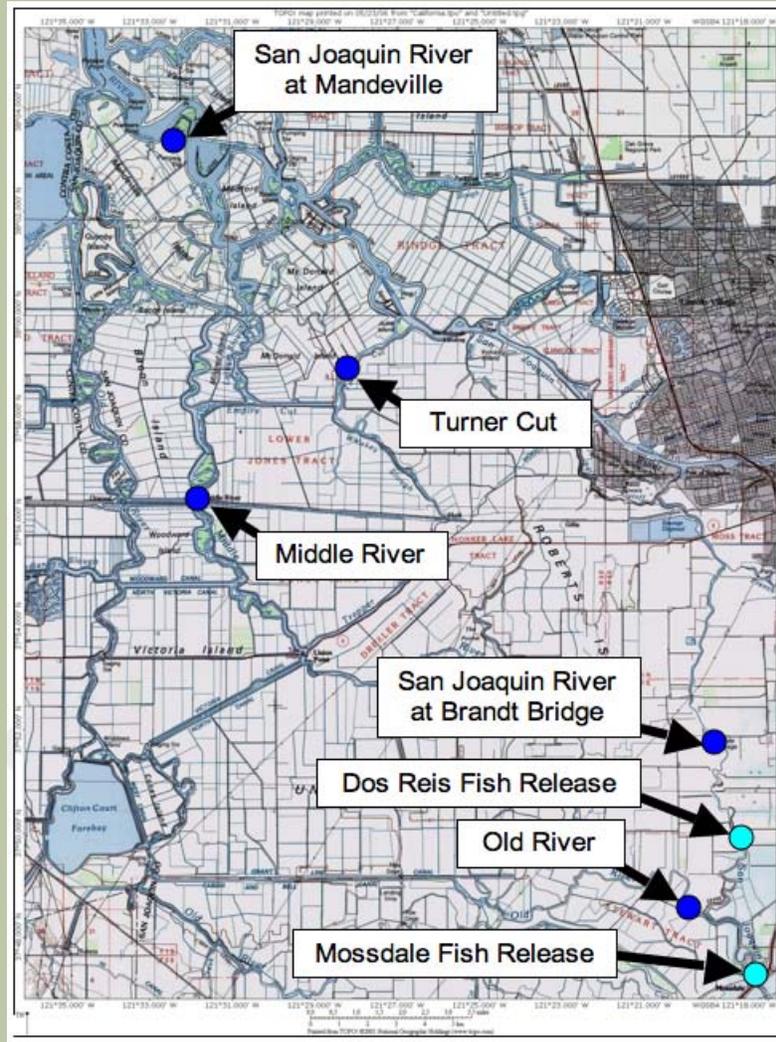
<sup>a</sup> Flows at Vernalis and exports during the VAMP period.

<sup>b</sup> During first fish release

<sup>c</sup> During second fish release

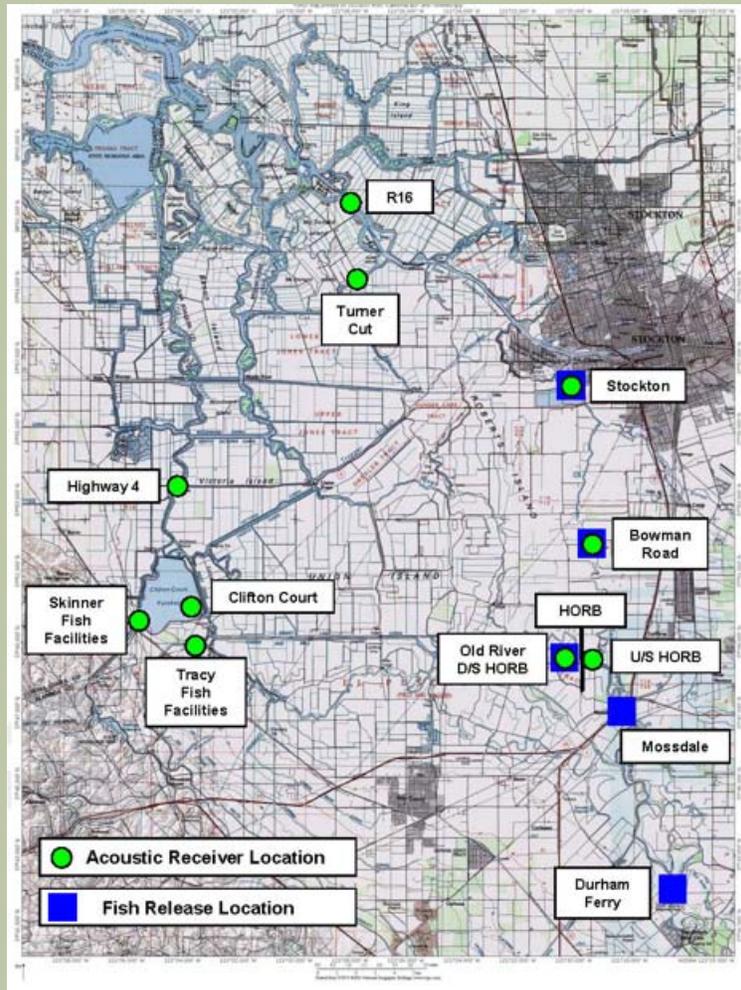
### Appendix D, Figure 1

Release and Receiver Locations for Pilot Acoustic Telemetry Tag Study Conducted as Part of VAMP in 2006. A Total of 67 (Mossdale) and 33 (Dos Reis) Tagged Salmon Smolts Were Released as Part of the 2006 Pilot Program. No Receivers Were in Place at Jersey Point or Chips Island to Estimate Survival Through the Delta.



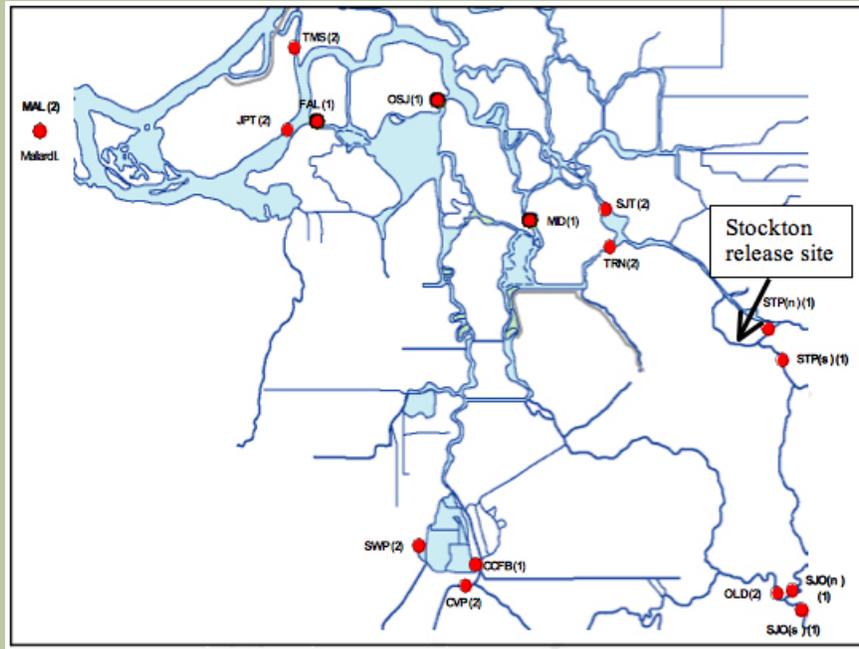
### Appendix D, Figure 2

Location of Acoustic Release and Detection Sites During VAMP in 2007. Approximately 100 Acoustically-tagged Fish Were Released at Each Location, in Each of Two Release Periods in May of 2007. No Receivers Were in Place at Jersey Point or Chipps Island to Estimate Survival Through the Delta. Through Mobile Tracking, Fifteen Percent (n=116) of the 776 tags Released at Four Upstream Locations Were Found Motionless at One Location Indicating That the Tags Were Either in Dead Fish or Had Been Defecated by a Predator.



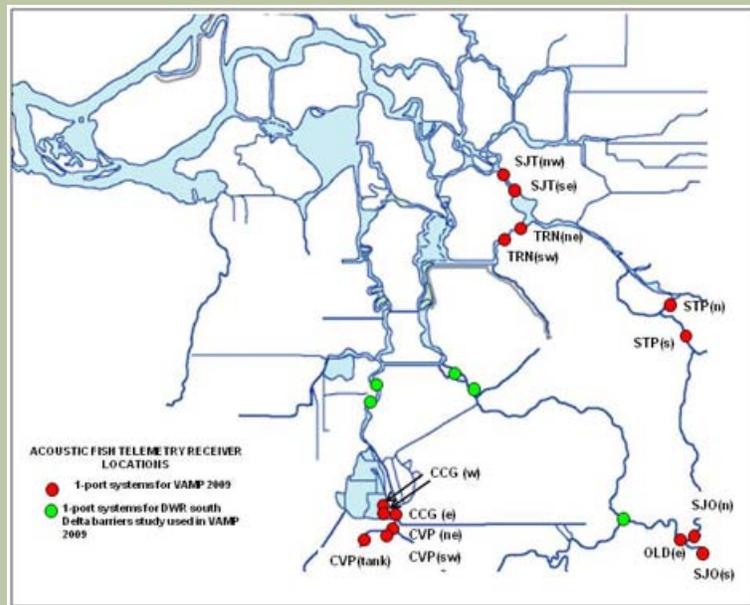
**Appendix D, Figure 3**

Location of Acoustic Detection Stations During the 2008 VAMP. Releases Were Made at Durham Ferry, Approximately 11 miles Upstream of the San Joaquin River Split at Old River (SJO(s)) and Just Downstream of Stockton (STP(n)). A Total of 78 (Stockton) and 144 (Durham Ferry) Acoustically-Tagged Fish Were Released at These Two Locations, for One Day and Night Release, During Two Periods in late-April - Early May in 2008.



**Appendix D, Figure 4**

Receiver Locations for the 2009 VAMP. Seven Releases of Approximately 133 Fish Were Made at Durham Ferry Between April 22 and May 13, 2009. No Receivers Were in Place at Jersey Point or Chippis Island to Estimate Survival Through the Delta.



**Appendix D, Figure 5**

Release Site and Receiver Locations for VAMP in 2010. Seven Groups of 70-74 Fish Were Released at Durham Ferry (DF), Seven Groups of 35-36 Acoustically-tagged Fish Were Released at Old River (near OR1/OR2) and Seven Groups of 34-36 Acoustically-tagged Fish Were Released at Stockton Between April 27 and May 20, 2010. Map is Not to Scale.

