

From: [Barajas, Federico](#)
To: [Chotkowski, Michael](#)
Subject: Fw: Slides from Armin
Date: 05/17/2012 12:24 PM
Attachments: [BDP FishAg Scenarios_051712_v3.pptx](#)

Fyi

From: Barajas, Federico
Sent: Thursday, May 17, 2012 01:21 PM
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Subject: FW: Slides from Armin

Hi All,
Armin's earlier presentation is attached. Thanks, FB

From: Armin.Munevar@CH2M.com [Armin.Munevar@CH2M.com]
Sent: Thursday, May 17, 2012 12:10 PM
To: Barajas, Federico
Subject: Slides

Frederico,

Here are the slides discussed.

Armin

Fish Agency Scenarios for BDCP Initial Operations Development

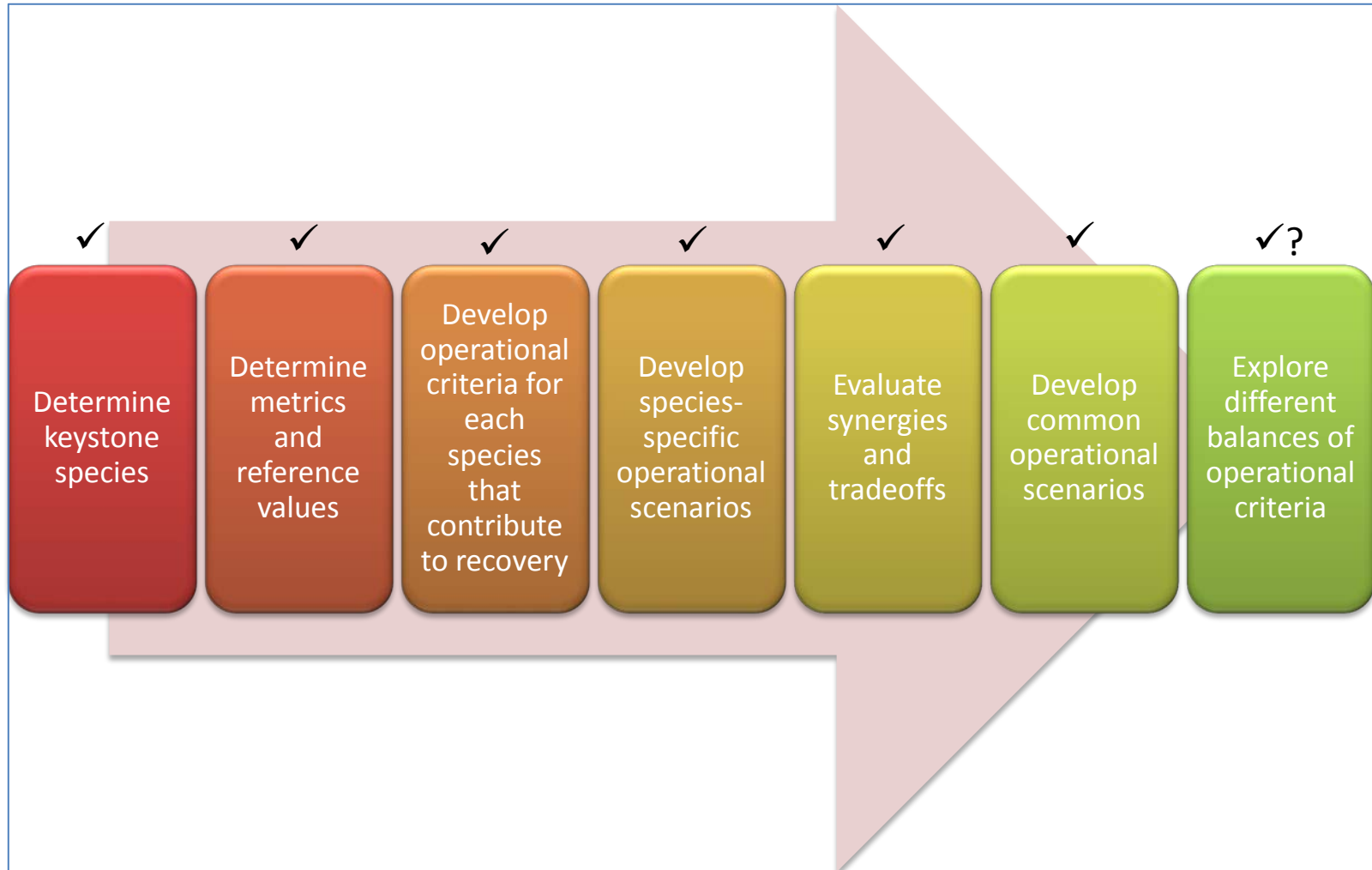
DRAFT

May 17, 2012

Analysis Overview

- Goals of analysis
 - Determine the operational parameters and metrics for the main species that drive operations
 - Identify synergies and tradeoffs amongst species operational targets
 - Develop scenarios that integrate operational targets for all species that contribute to recovery
 - Identify areas of uncertainty and explore the sensitivity of water operations to these parameters
- All analyses performed with Jan 2010 proposed operations for BDCP (dual conveyance)
- All analyses performed with Early Long-Term assumptions (climate and sea level change, demand growth)

Analytical Approach



7 Keystone Species Selected for Analysis

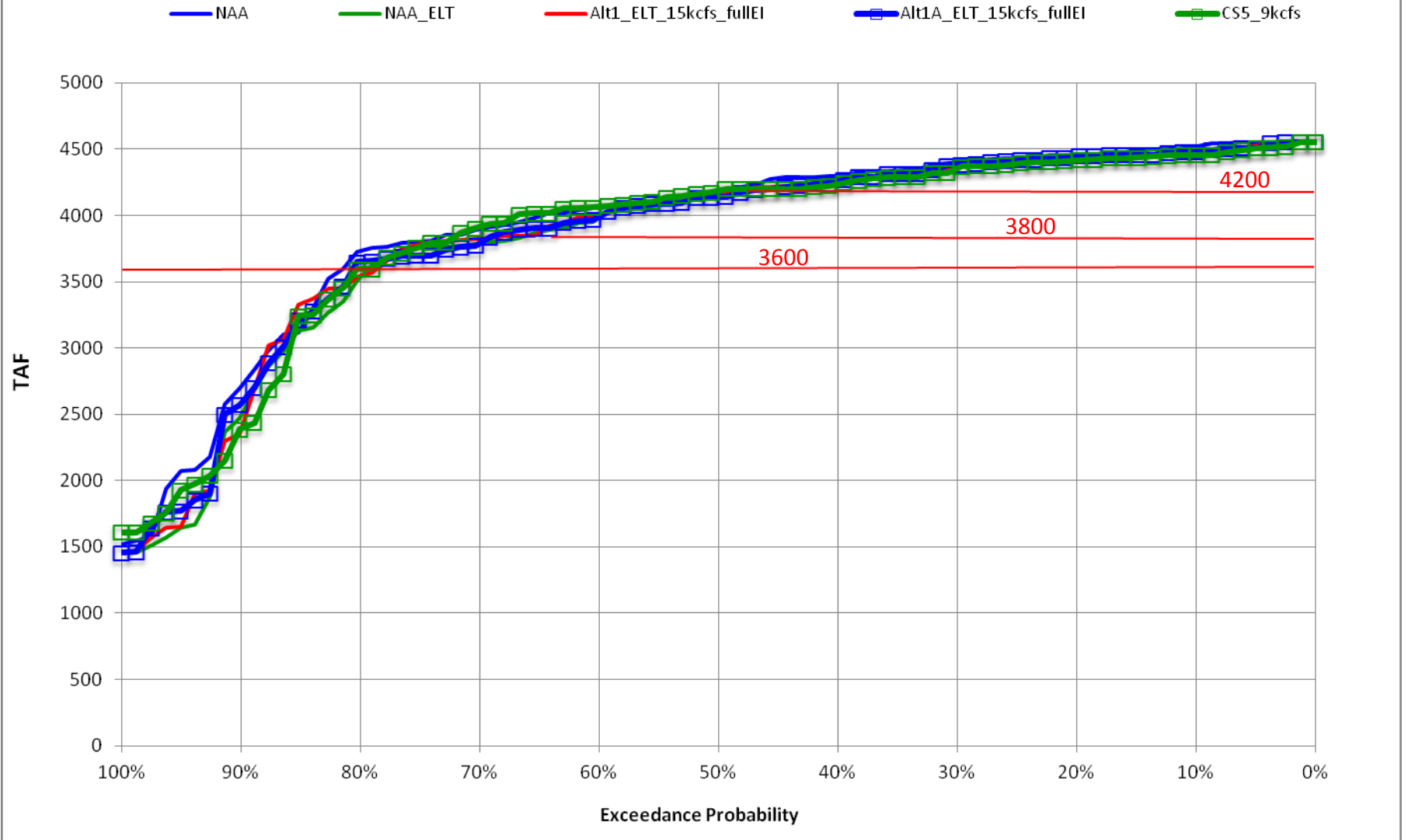
- Species for which significant effect on operational parameters may be expected
- 7 keystone species considered in analysis
 - Delta smelt
 - Longfin smelt
 - Winter run chinook
 - Spring run chinook
 - Fall and late-fall run chinook
 - San Joaquin salmonids
 - White and green sturgeon

Key Operational Parameters Considered

- ***Shasta April and September storage*** targets to develop and manage the available cold water pool
- ***Keswick release targets*** to provide flows necessary for temperature control and enhancing ecosystem
- ***Old and Middle River flows*** along with the ***Head of Old River Barrier*** operations to protect against entrainment risk
- ***Delta outflow and X2*** criteria to enhance the suitable habitat availability
- ***North delta diversion bypass flows*** to reduce the risk of increased reverse flows on Sacramento River downstream of Georgiana Slough

Shasta End of April Storage

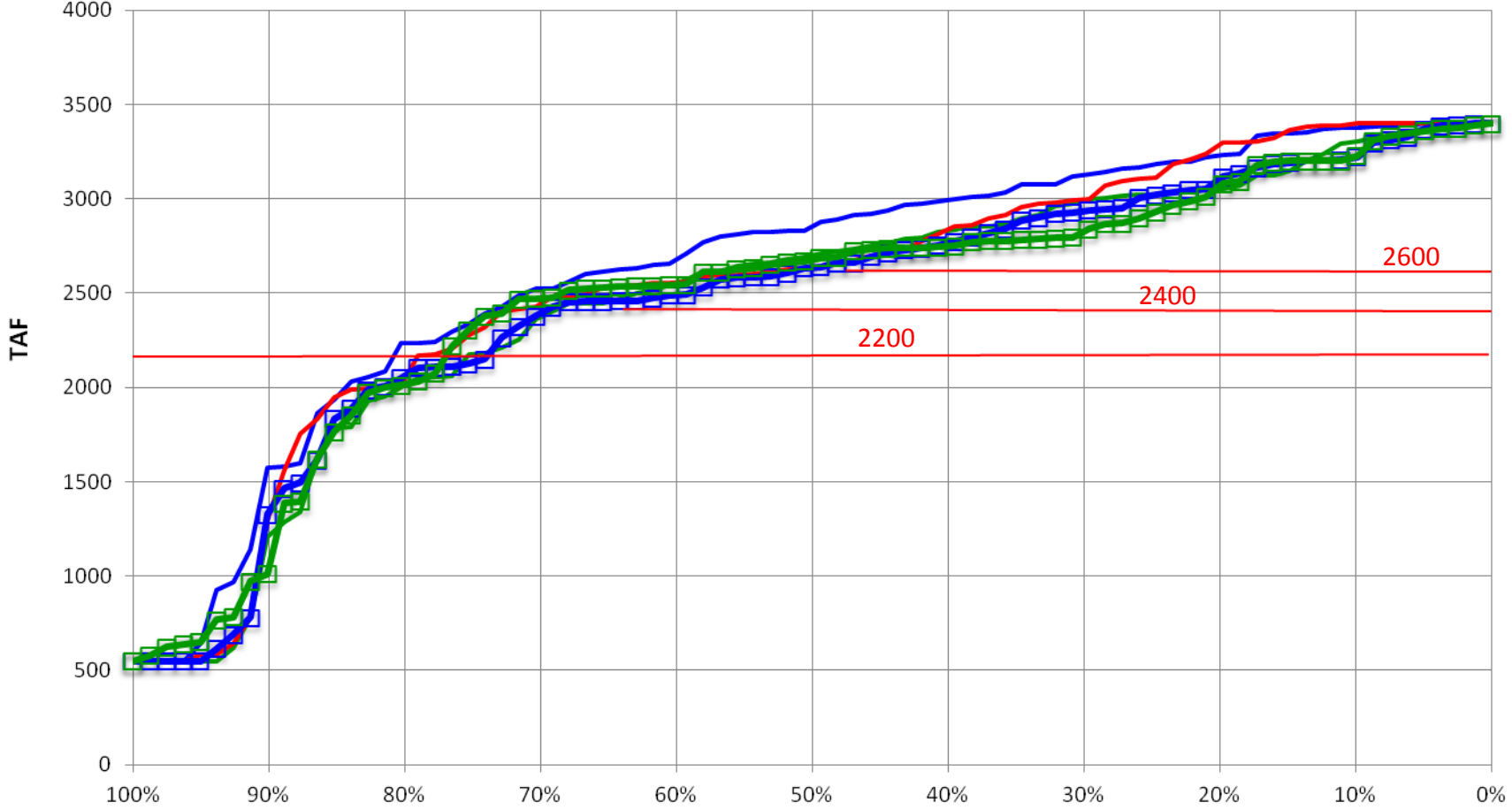
Results Exceedance Probability
Shasta APR



Shasta End of September Storage

Results Exceedance Probability
Shasta SEP

NAA NAA_ELT Alt1_ELT_15kcfs_fullEI Alt1A_ELT_15kcfs_fullEI CS5_9kcfs

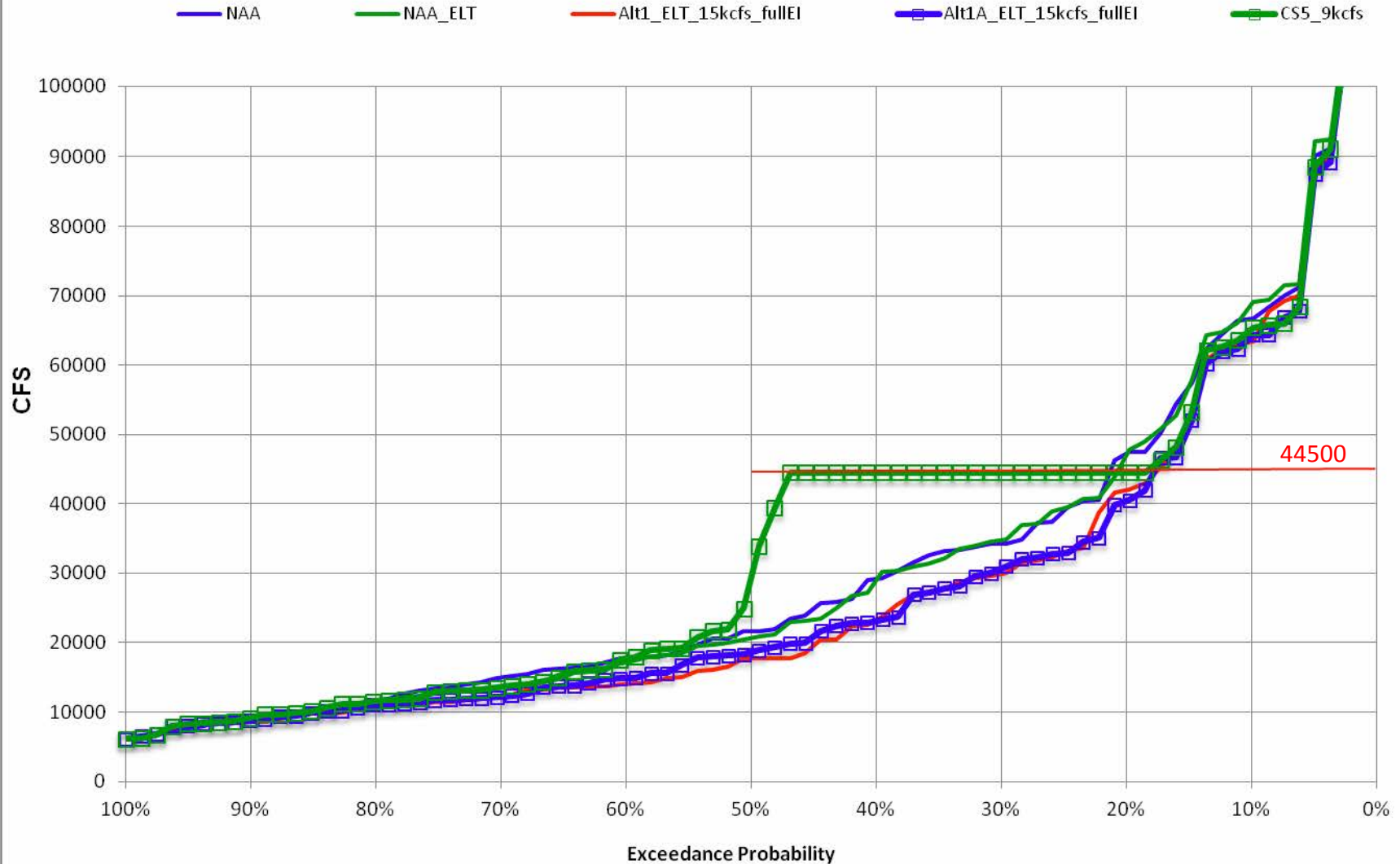


Exceedance Probability

Spring Delta Outflow (Mar-May)

Results Exceedance Probability

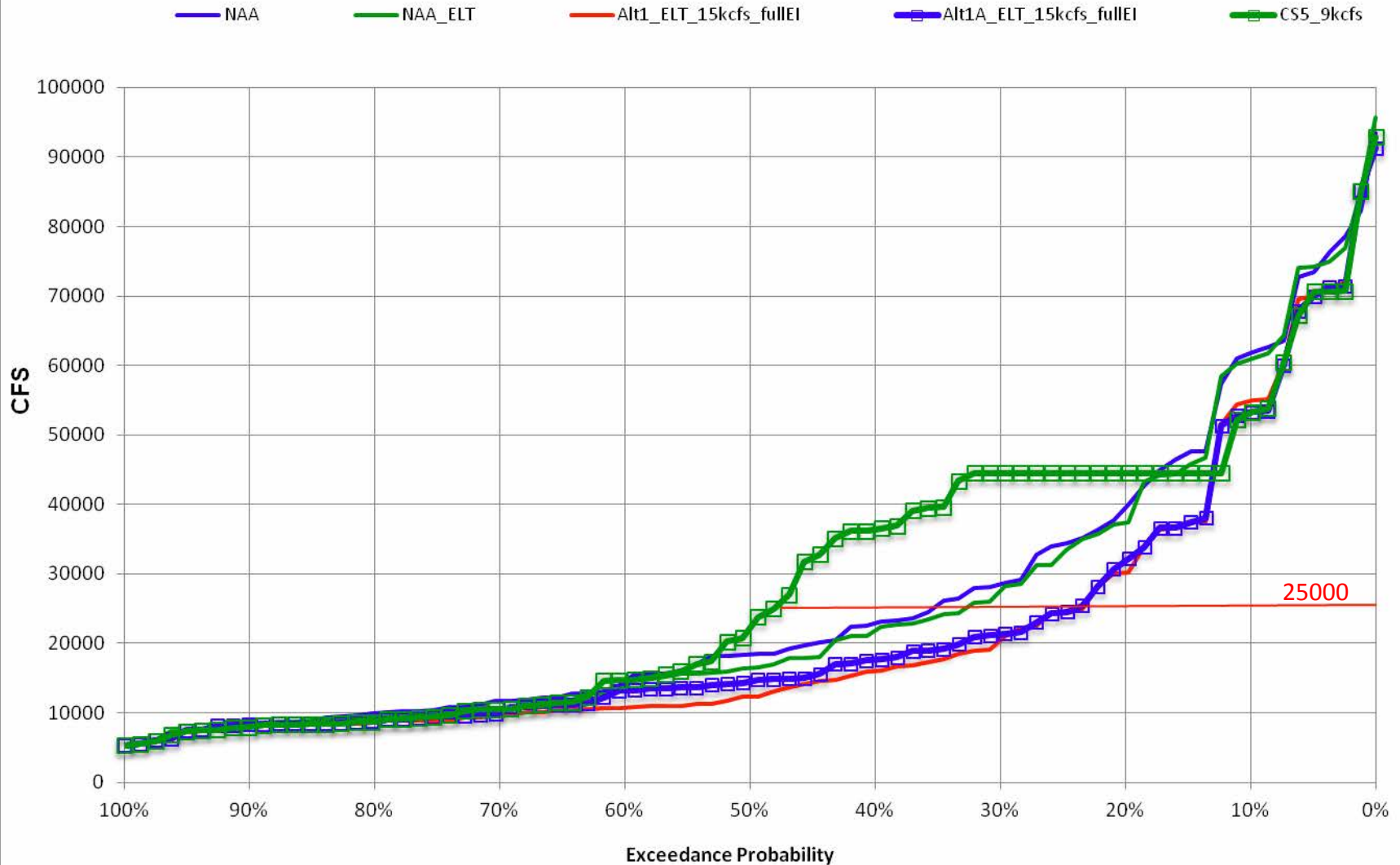
Delta Outflow MAR-MAY period average



Spring Delta Outflow (Apr-May)

Results Exceedance Probability

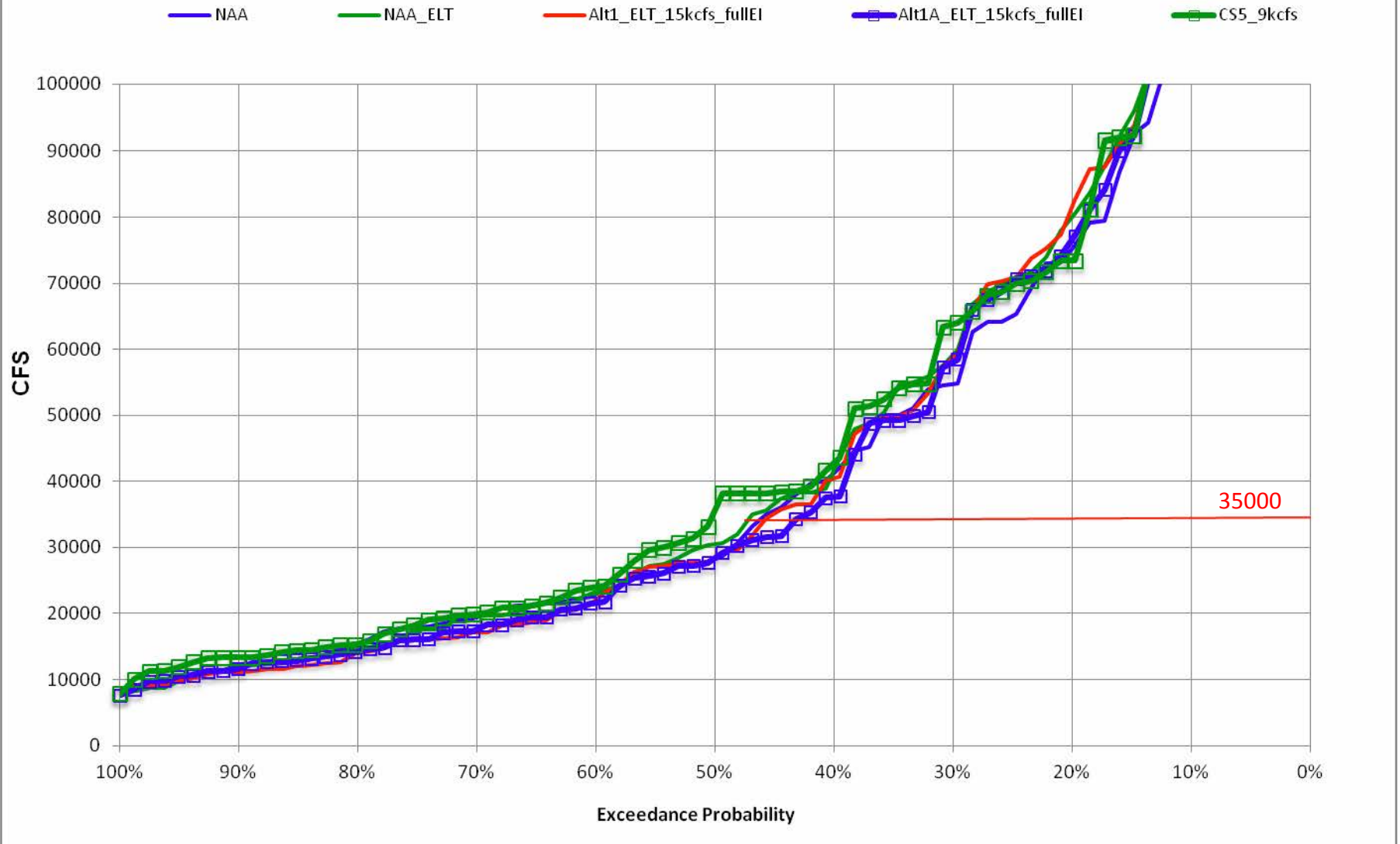
Delta Outflow APR-MAY period average



Spring Delta Outflow (Jan-Mar)

Results Exceedance Probability

Delta Outflow JAN-MAR period average

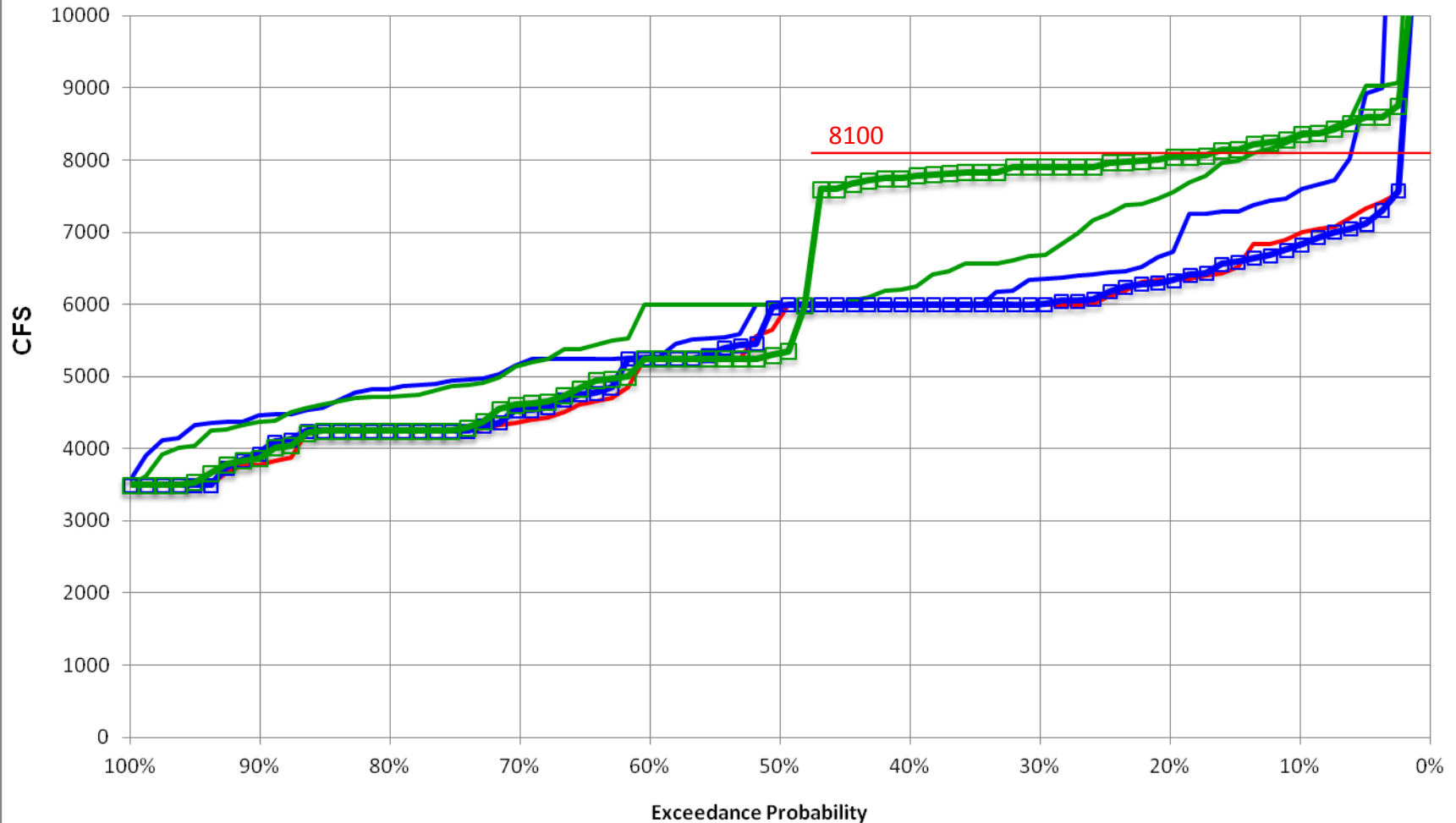


Summer Delta Outflow (Jul-Aug)

Results Exceedance Probability

Delta Outflow JUL-AUG period average

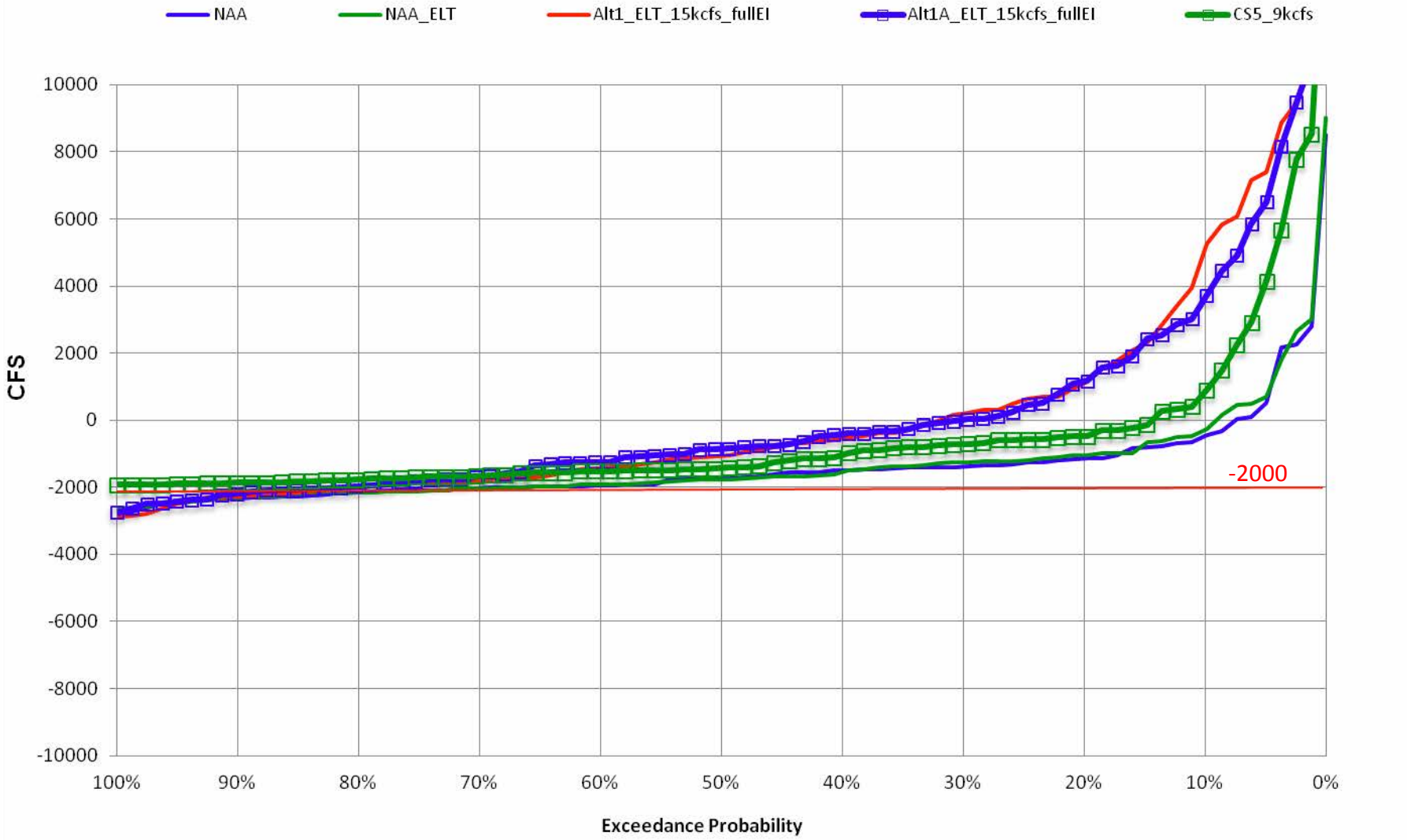
— NAA — NAA_ELT — Alt1_ELT_15kcfs_fullEI — Alt1A_ELT_15kcfs_fullEI — CS5_9kcfs



Spring Old and Middle River Flows

Results Exceedance Probability

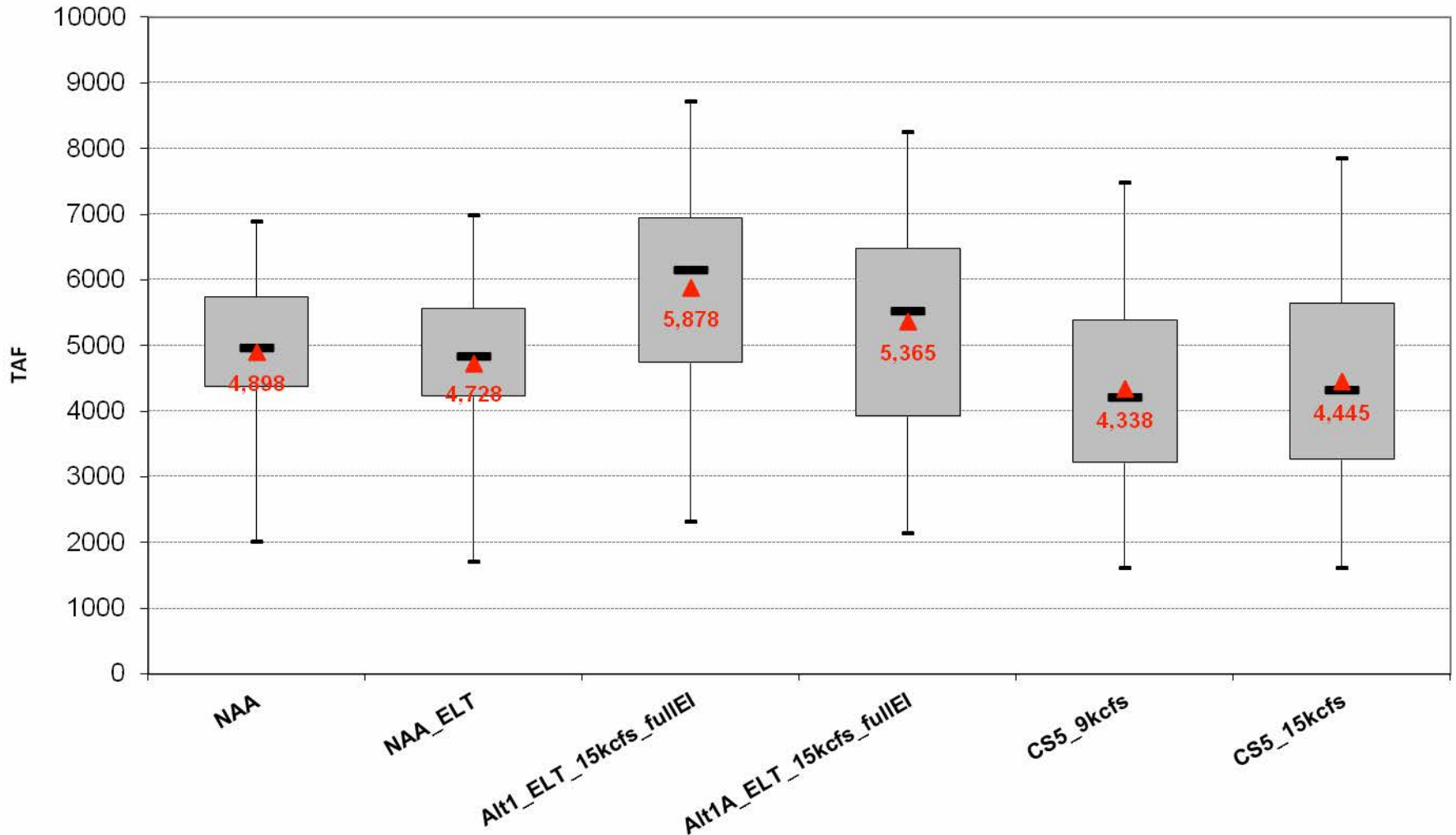
Old & Middle River (OMR) Flow MAR-JUN period average



Annual Delta Exports

Single Month Box Plot Study Comparison
(Box=25th to 75th percentile range, whiskers=min and max, dash=median, triangle=mean)

Delta Exports ANNUAL

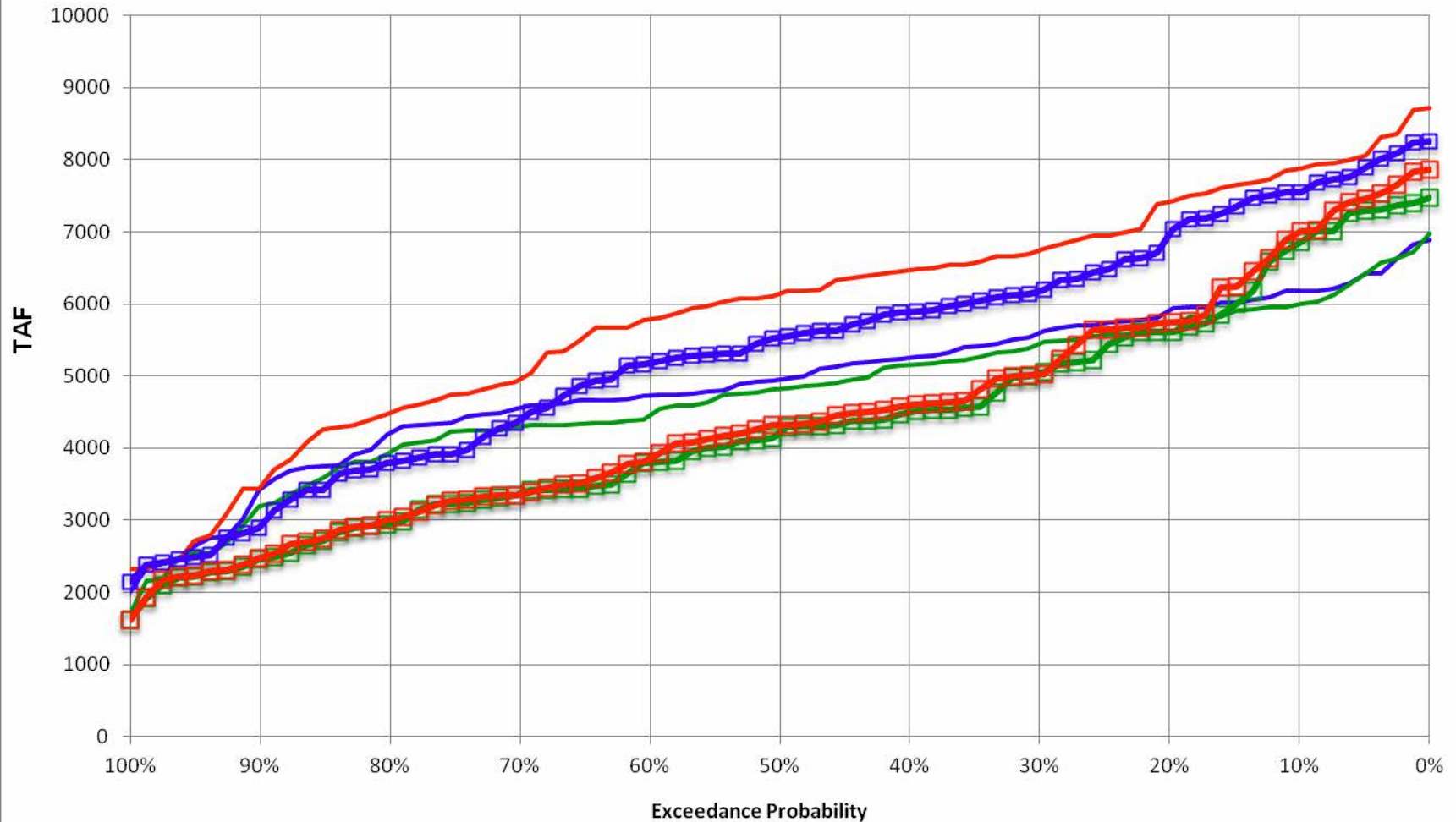


Annual Delta Exports Reliability

Results Exceedance Probability

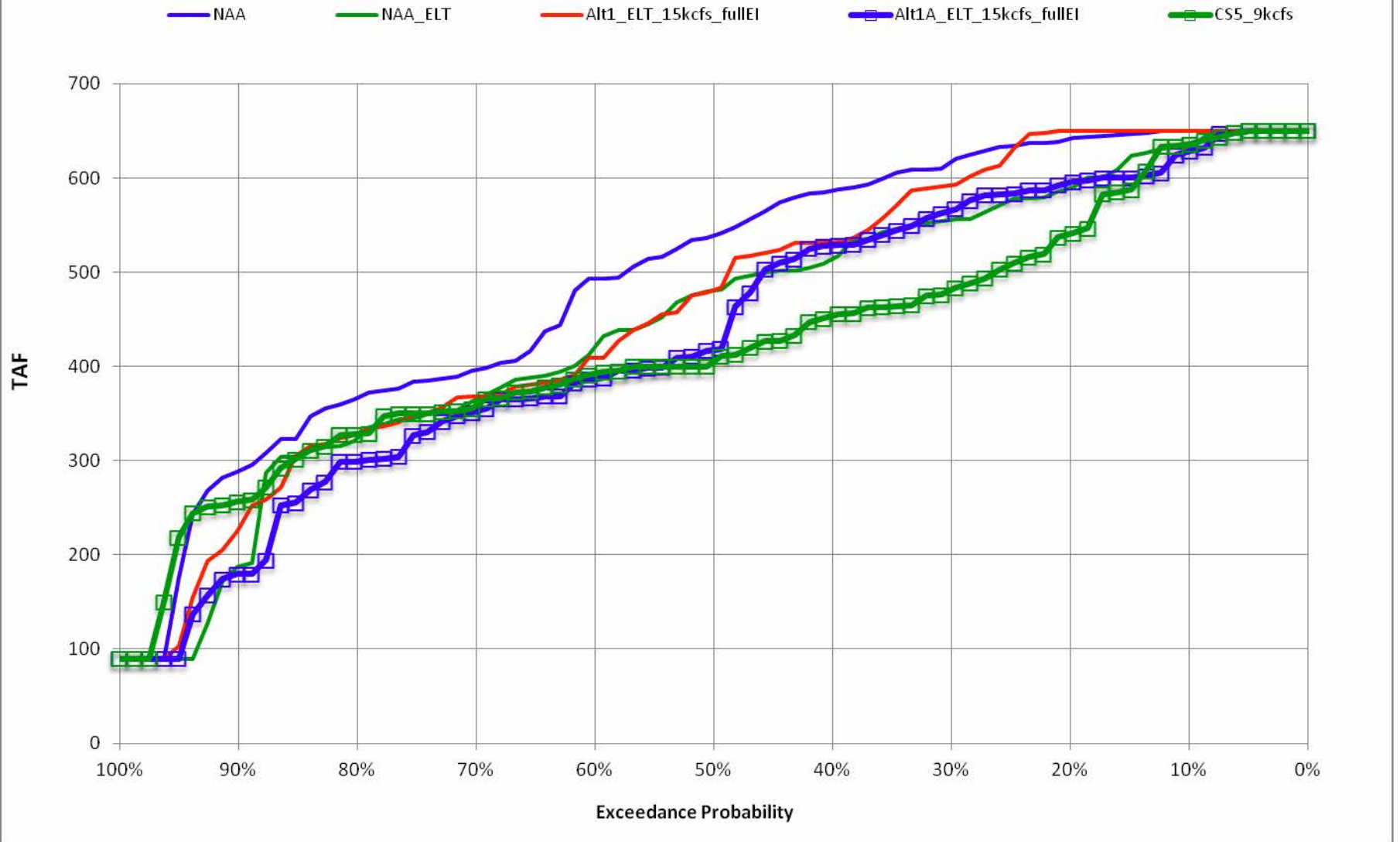
Delta Exports OCT-SEP period total

NAA NAA_ELT Alt1_ELT_15kcf5_fullEI Alt1A_ELT_15kcf5_fullEI CS5_9kcf5 CS5_15kcf5



Folsom End of September Storage

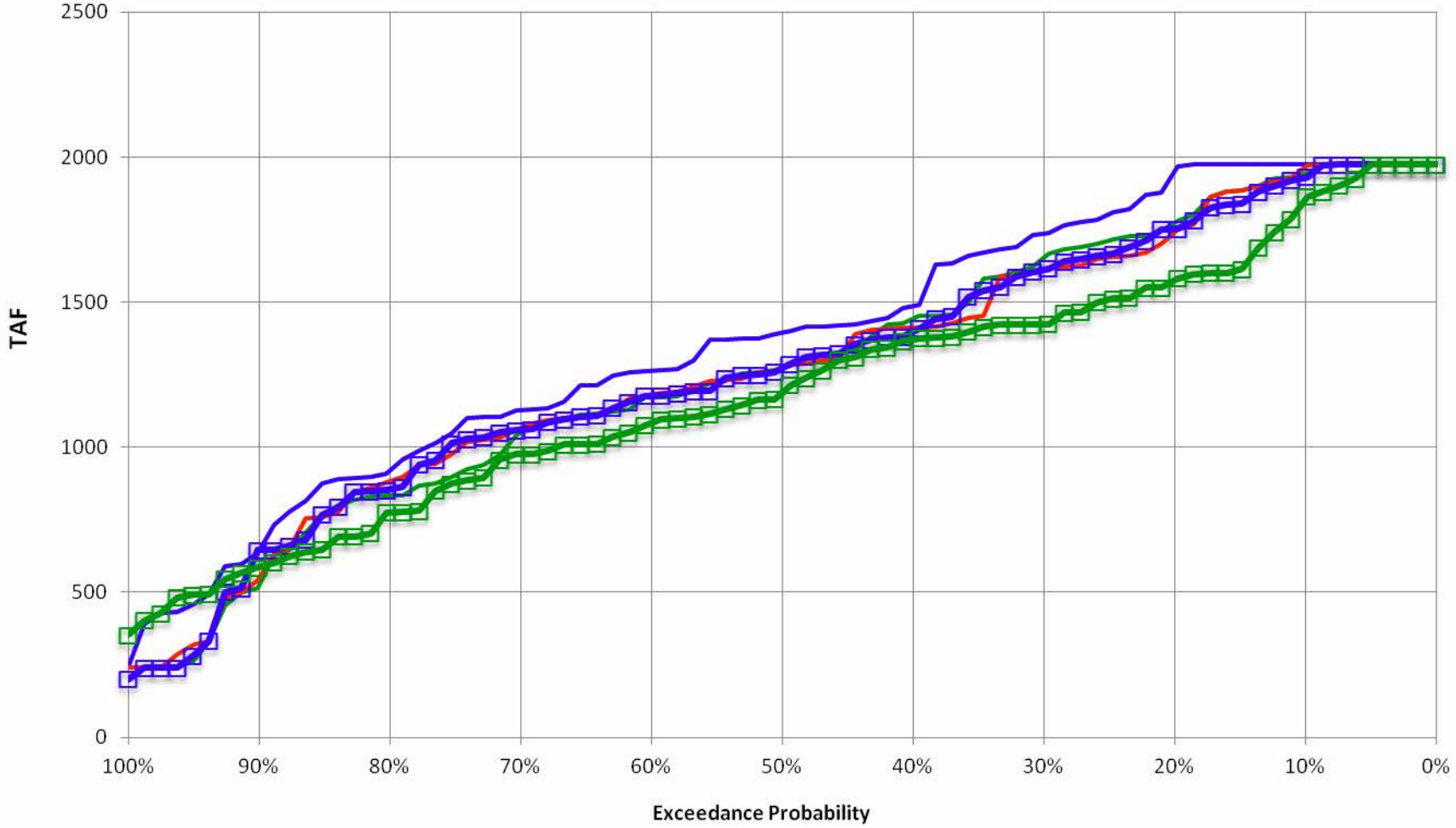
Results Exceedance Probability
Folsom SEP



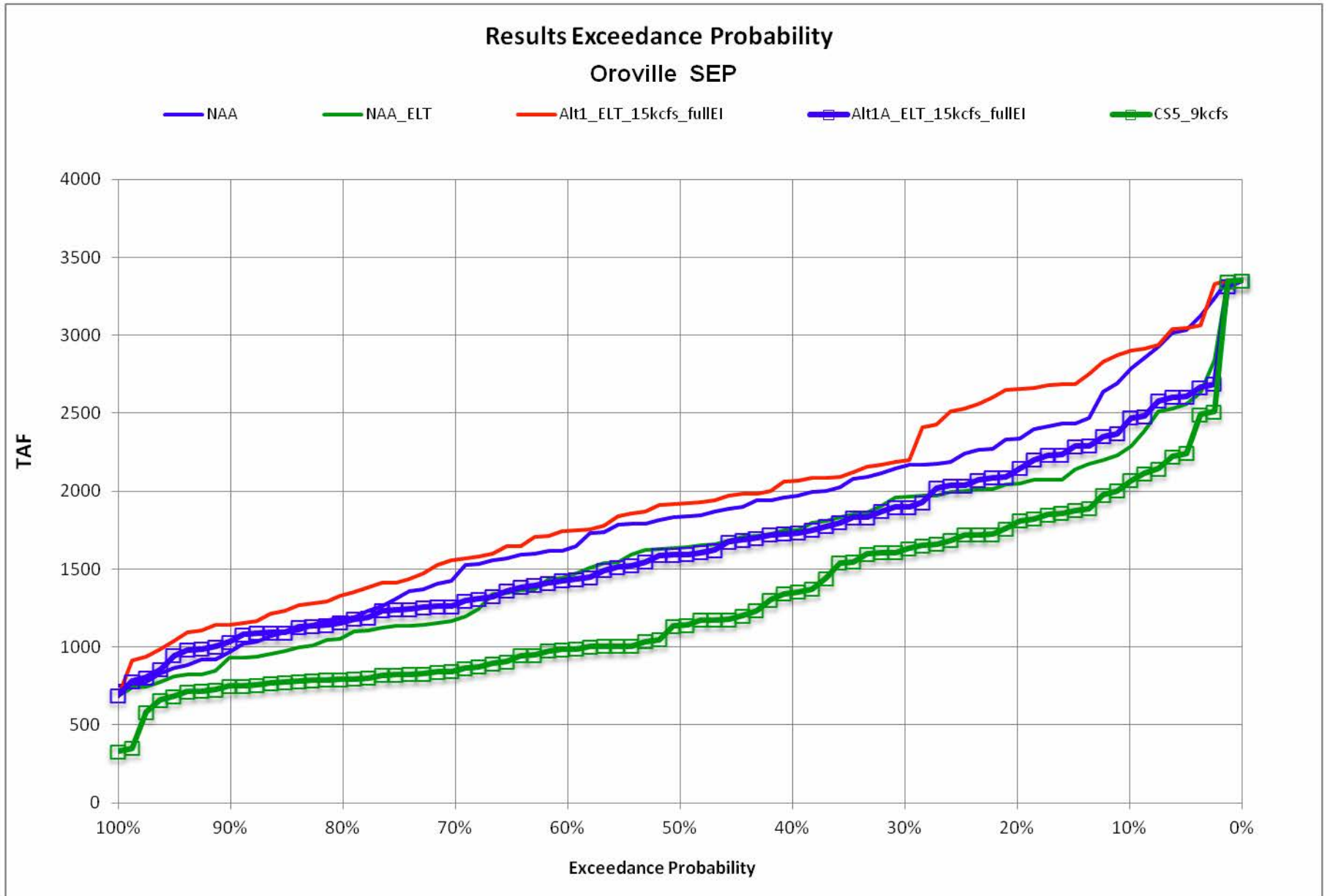
Trinity End of September Storage

Results Exceedance Probability
Trinity SEP

NAA NAA_ELT Alt1_ELT_15kcfs_fullEI Alt1A_ELT_15kcfs_fullEI CS5_9kcfs



Oroville End of September Storage



Conclusions - Smelts

- Does CS5 scenario meet contribution towards recovery?
 - South Delta entrainment criteria meet
 - Meets seasonal outflow criteria for Delta smelt
 - Meets spring outflow objectives for Longfin smelt
 - CS5 provides for improved outflow without worsening Shasta cold water pool RPA baseline

Conclusions - Salmonids

- Does CS5 scenario meet contribution towards recovery?
 - San Joaquin salmonids criteria met
 - CS5 provides for improved outflow without worsening Shasta cold water pool RPA baseline
 - Uncertainty in summer time Keswick flows for temperature – needs analysis
 - WR criteria not always met – may not be possible within constraints to contribute to recovery
 - Oroville and Trinity results need further review
 - Questions remain re: Fall-run spring flow criteria

Uncertainty in Operations

- Teams prepared assessment of the uncertainty and importance of various operational parameters
- Matrix was prepared to highlight those areas of greater or lesser certainty

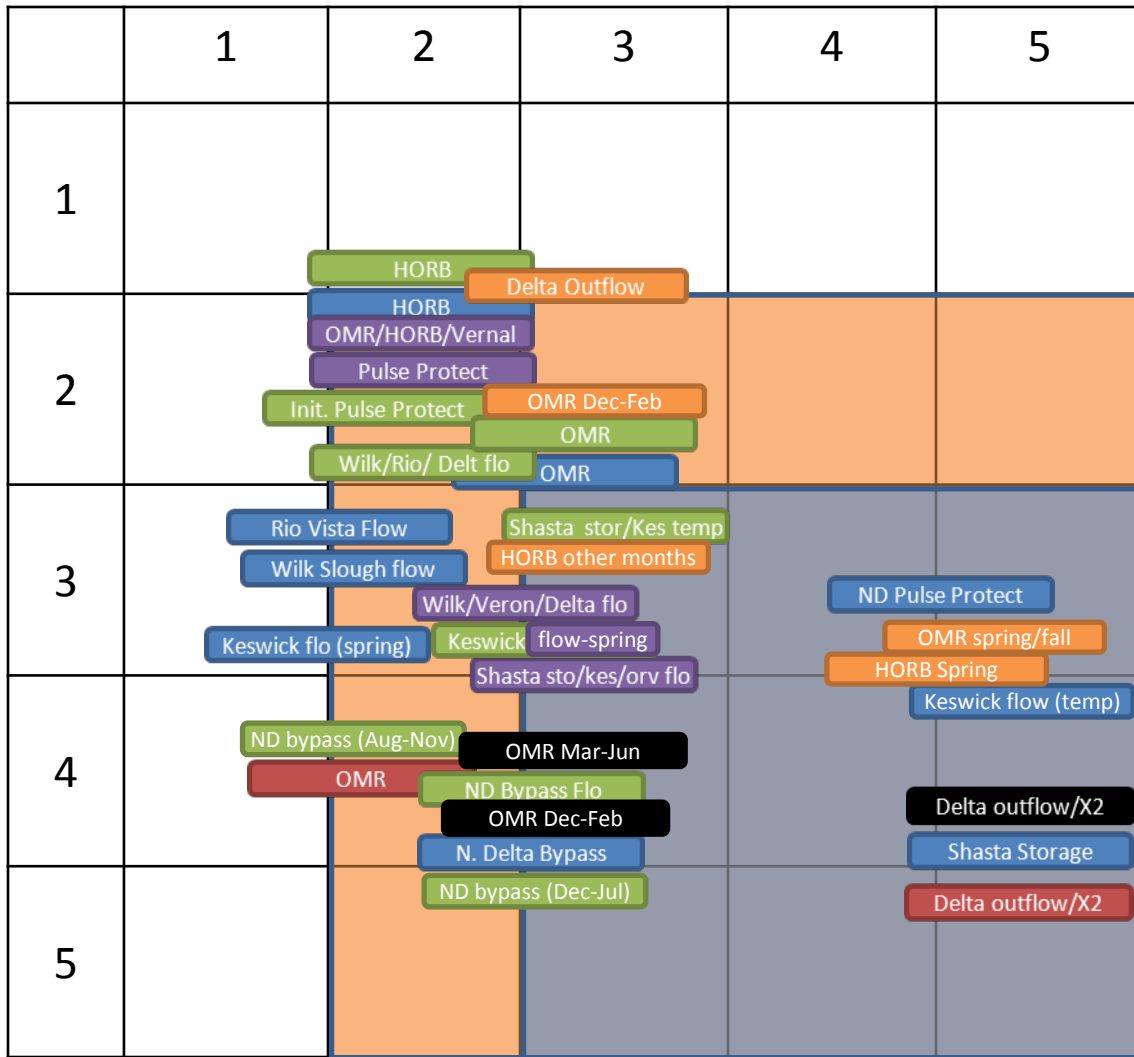
High **Importance to Species** **Critical**



LOW

Level of Certainty

HIGH



- Longfin Smelt
- Delta Smelt
- WRC/SRC
- Fall-Run Chn
- SJR Salmonids
- W&G Sturgeon

Sensitivity of Operations

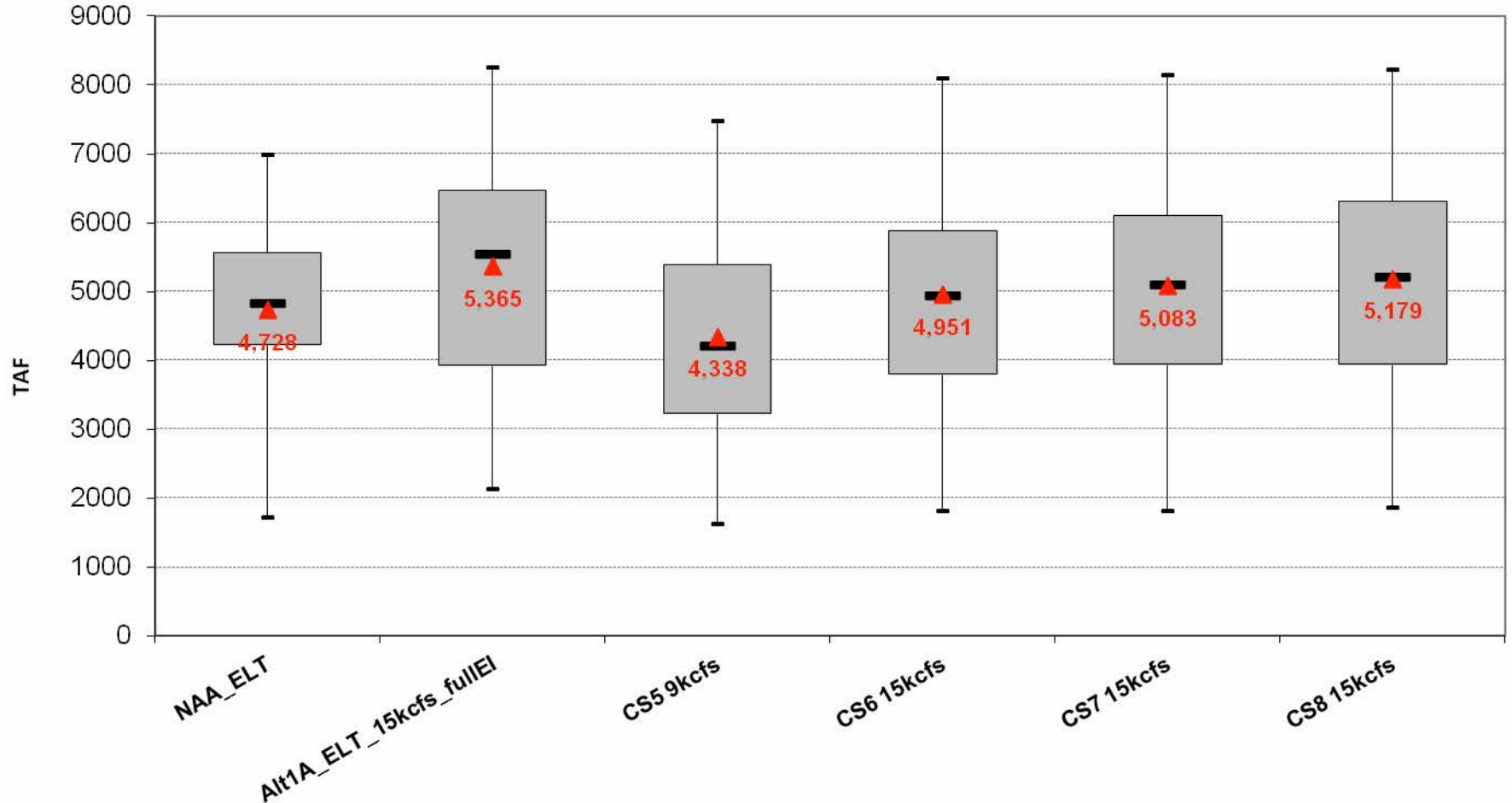
- Combined Species run 5
 - Includes all water operations for all species
- Combined Species run 6
 - No July-August outflow for delta smelt
 - Uses SJR salmonid OMR criteria ($> -2500/-2000$ cfs) for March-May
 - Replaces spring outflow requirements with 25 kcfs during March-May
 - No July-Nov additional north delta bypass flows
- Combined Species run 7
 - January-June OMR per Alternative 1A
 - Spring north delta bypass flows set at 15 kcfs
- Combined Species run 8
 - Spring outflow per Alternative 1A (D1641)
 - North delta diversion bypass flows per Alternative 1A

Delta Exports

Single Month Box Plot Study Comparison

(Box=25th to 75th percentile range, whiskers=min and max, dash=median, triangle=mean)

Delta Exports ANNUAL



Metrics for Smelt

Longfin Smelt

Bio Obj	Variable	Units	Year	Type	Condition	Threshold	NAA	NAA_ELT	ALT1_ELT	ALT1A_ELT	CS5	CS6	CS7	CS8
Juvenile Entrainment Projection - Dec	OMR	CFS	0	>=	-5010	13	17	28	39	100	100	100	100	
Juvenile Entrainment Projection - Jan1	OMR	CFS	0	>=	-3510	43	41	60	88	100	100	80	80	
Juvenile Entrainment Projection - Feb5	OMR	CFS	0	>=	-3510	44	46	80	77	100	100	74	74	
Juvenile Entrainment Projection - Mar1	OMR	CFS	0	>=	-5010	100	100	100	100	100	100	100	100	
Juvenile Entrainment Projection - Apr1	OMR	CFS	0	>=	-5010	100	100	100	100	100	100	100	100	
Juvenile Entrainment Projection - May2	OMR	CFS	0	>=	-5010	100	100	100	100	100	100	100	100	
Delta Habitat - MarMay1	Delta_Outflow	CFS	0	>=	44400	22	21	18	18	48	18	18	18	
Delta Habitat - MarMay1	Delta_Outflow	CFS	0	>=	24990	45	44	39	38	50	50	50	38	

Target is 50%

Delta Smelt

Bio Obj	Variable	Units	Year	Type	Condition	Threshold	NAA	NAA_ELT	ALT1_ELT	ALT1A_ELT	CS5	CS6	CS7	CS8
Juvenile Entrainment Projection - Dec	OMR	CFS	0	>=	-5010	13	17	28	39	100	100	100	100	
Juvenile Entrainment Projection - Jan1	OMR	CFS	0	>=	-3510	43	41	60	88	100	100	80	80	
Juvenile Entrainment Projection - Feb5	OMR	CFS	0	>=	-3510	44	46	80	77	100	100	74	74	
Juvenile Entrainment Projection - Mar1	OMR	CFS	0	>=	-2010	27	26	73	71	100	66	66	67	
Juvenile Entrainment Projection - Apr1	OMR	CFS	0	>=	-2010	100	100	67	100	100	100	100	100	
Juvenile Entrainment Projection - May2	OMR	CFS	0	>=	-2010	100	100	72	100	100	100	100	100	
Juvenile Entrainment Projection - Jun2	OMR	CFS	0	>=	-2010	10	10	39	38	27	30	30	29	
Delta Habitat - JulAug1	X2	KM	1	<=	82	88	100	54	69	100	62	65	62	
Delta Habitat - JulAug2	X2	KM	2	<=	82	92	83	25	58	100	75	58	58	

Metrics for Winter Run

Bio Obj	Variable	Units	ear	Typ	onditio	Threshold	NAA	NAA_ELT	ALT1_ELT	ALT1A_ELT	ALT1_9kcf	CS5	CS6	CS7	CS8
Shasta Coldwater Pool Setup1	Shasta_Stor	TAF	0	>=	4200	49	45	48	46	48	50	62	62	62	62
Shasta Coldwater Pool Setup2	Shasta_Stor	TAF	0	>=	3800	76	70	73	71	72	72	78	78	78	79
Shasta Coldwater Pool Setup3	Shasta_Stor	TAF	0	>=	3600	80	79	79	80	79	78	84	84	83	83
Shasta Coldwater Pool Setup4	Shasta_Stor	TAF	0	>=	3000	87	85	88	87	88	85	88	88	88	88
Shasta Coldwater Carryover1	Shasta_Stor	TAF	0	>=	2600	67	59	55	57	57	59	70	66	66	67
Shasta Coldwater Carryover2	Shasta_Stor	TAF	0	>=	2400	73	70	72	70	72	72	84	83	83	84
Shasta Coldwater Carryover3	Shasta_Stor	TAF	0	>=	2200	80	73	77	73	78	77	88	87	87	87
Shasta Coldwater Carryover4	Shasta_Stor	TAF	0	>=	1900	85	83	84	83	85	83	90	89	89	89
Juvenile Entrainment Projection - Oct	OMR	CFS	0	>=	-5010	24	45	33	100	35	100	100	100	100	100
Juvenile Entrainment Projection - Nov	OMR	CFS	0	>=	-5010	40	38	39	100	45	100	100	100	100	100
Juvenile Entrainment Projection - Dec	OMR	CFS	0	>=	-5010	13	17	28	39	28	100	100	100	100	100
Juvenile Entrainment Projection - Jan1	OMR	CFS	1	>=	-10	8	12	77	69	50	73	69	69	69	73
Juvenile Entrainment Projection - Jan2	OMR	CFS	2	>=	-3510	58	67	75	100	75	100	100	100	100	100
Juvenile Entrainment Projection - Jan3	OMR	CFS	3	>=	-5010	100	100	100	100	100	100	100	100	100	100
Juvenile Entrainment Projection - Jan4	OMR	CFS	4	>=	-5010	100	100	100	100	100	100	100	100	100	100
Juvenile Entrainment Projection - Jan5	OMR	CFS	5	>=	-5010	100	100	100	100	100	100	100	100	100	100
Juvenile Entrainment Projection - Feb1	OMR	CFS	1	>=	-10	19	23	100	100	85	81	92	92	92	100
Juvenile Entrainment Projection - Feb2	OMR	CFS	2	>=	-3510	67	67	100	100	100	100	100	100	100	100
Juvenile Entrainment Projection - Feb3	OMR	CFS	3	>=	-5010	100	100	100	100	100	100	100	100	100	100
Juvenile Entrainment Projection - Feb4	OMR	CFS	4	>=	-5010	100	100	100	100	100	100	100	100	100	100
Juvenile Entrainment Projection - Feb5	OMR	CFS	5	>=	-5010	100	100	100	100	100	100	100	100	100	100
Juvenile Entrainment Projection - Mar1	OMR	CFS	1	>=	-10	15	19	96	88	92	85	85	85	85	81
Juvenile Entrainment Projection - Mar2	OMR	CFS	2	>=	-10	8	8	75	83	50	42	58	58	58	75
Juvenile Entrainment Projection - Mar3	OMR	CFS	3	>=	-3510	43	50	86	100	100	100	100	100	100	100
Juvenile Entrainment Projection - Mar4	OMR	CFS	4	>=	-3510	78	89	94	100	94	100	100	100	100	100
Juvenile Entrainment Projection - Mar5	OMR	CFS	5	>=	-3510	75	92	92	100	92	100	100	100	100	100
Juvenile Entrainment Projection - Apr1	OMR	CFS	0	>=	-2010	100	100	67	100	66	100	100	100	100	100
Juvenile Entrainment Projection - May1	OMR	CFS	0	>=	-2010	100	100	72	100	74	100	100	100	100	100

Metrics for Spring Run

Bio Obj	Variable	Units	Year	Typical	Threshold	NAA	NAA_ELT	ALT1_ELT	ALT1A_ELT	CS5	CS6	CS7	CS8
Shasta Coldwater Pool Setup1	Shasta_Stor	TAF	0	>=	4200	49	45	48	46	50	62	62	62
Shasta Coldwater Pool Setup2	Shasta_Stor	TAF	0	>=	4000	65	60	60	60	67	74	74	74
Shasta Coldwater Pool Setup3	Shasta_Stor	TAF	0	>=	3800	76	70	73	71	72	78	78	79
Shasta Coldwater Pool Setup4	Shasta_Stor	TAF	0	>=	3000	87	85	88	87	85	88	88	88
Shasta Coldwater Carryover1	Shasta_Stor	TAF	0	>=	2600	67	59	55	57	59	70	66	67
Shasta Coldwater Carryover2	Shasta_Stor	TAF	0	>=	2500	71	63	66	65	68	78	78	79
Shasta Coldwater Carryover3	Shasta_Stor	TAF	0	>=	2400	73	70	72	70	72	84	83	84
Shasta Coldwater Carryover4	Shasta_Stor	TAF	0	>=	1900	85	83	84	83	83	90	89	89
Juvenile Entrainment Projection - Feb1	OMR	CFS	1	>=	-10	19	23	100	100	81	92	92	100
Juvenile Entrainment Projection - Feb2	OMR	CFS	2	>=	-3510	67	67	100	100	100	100	100	100
Juvenile Entrainment Projection - Feb3	OMR	CFS	3	>=	-5010	100	100	100	100	100	100	100	100
Juvenile Entrainment Projection - Feb4	OMR	CFS	4	>=	-5010	100	100	100	100	100	100	100	100
Juvenile Entrainment Projection - Feb5	OMR	CFS	5	>=	-5010	100	100	100	100	100	100	100	100
Juvenile Entrainment Projection - Mar1	OMR	CFS	1	>=	-10	15	19	96	88	85	85	85	81
Juvenile Entrainment Projection - Mar2	OMR	CFS	2	>=	-10	8	8	75	83	42	58	58	75
Juvenile Entrainment Projection - Mar3	OMR	CFS	3	>=	-3510	43	50	86	100	100	100	100	100
Juvenile Entrainment Projection - Mar4	OMR	CFS	4	>=	-3510	78	89	94	100	100	100	100	100
Juvenile Entrainment Projection - Mar5	OMR	CFS	5	>=	-3510	75	92	92	100	100	100	100	100
Juvenile Entrainment Projection - Apr1	OMR	CFS	0	>=	-2010	100	100	67	100	100	100	100	100
Juvenile Entrainment Projection - May1	OMR	CFS	0	>=	-2010	100	100	72	100	100	100	100	100
Juvenile Entrainment Projection - Jun1	OMR	CFS	0	>=	-3510	54	59	89	100	100	100	100	100

Metrics for Fall and Late Fall Run

Bio Obj	Variable	Units	Year	Type	Indicator	Threshold	NAA	NAA_ELT	ALT1_ELT	ALT1A_ELT	CS5	CS6	CS7	CS8
Shasta Coldwater Pool Setup1	Shasta_Stor	TAF	0	>=	4200		49	45	48	46	50	62	62	62
Shasta Coldwater Pool Setup2	Shasta_Stor	TAF	0	>=	3800		76	70	73	71	72	78	78	79
Shasta Coldwater Pool Setup3	Shasta_Stor	TAF	0	>=	3600		80	79	79	80	78	84	83	83
Shasta Coldwater Pool Setup4	Shasta_Stor	TAF	0	>=	3000		87	85	88	87	85	88	88	88
Shasta Coldwater Carryover1	Shasta_Stor	TAF	0	>=	2600		67	59	55	57	59	70	66	67
Shasta Coldwater Carryover2	Shasta_Stor	TAF	0	>=	2400		73	70	72	70	72	84	83	84
Shasta Coldwater Carryover3	Shasta_Stor	TAF	0	>=	2200		80	73	77	73	77	88	87	87
Shasta Coldwater Carryover4	Shasta_Stor	TAF	0	>=	1900		85	83	84	83	83	90	89	89
Juvenile Entrainment Projection - Nov	OMR	CFS	0	>=	-5010		40	38	39	100	100	100	100	100
Juvenile Entrainment Projection - Dec	OMR	CFS	0	>=	-5010		13	17	28	39	100	100	100	100
Juvenile Entrainment Projection - Jan1	OMR	CFS	1	>=	-10		8	12	77	69	73	69	69	73
Juvenile Entrainment Projection - Jan2	OMR	CFS	2	>=	-3510		58	67	75	100	100	100	100	100
Juvenile Entrainment Projection - Jan3	OMR	CFS	3	>=	-5010		100	100	100	100	100	100	100	100
Juvenile Entrainment Projection - Jan4	OMR	CFS	4	>=	-5010		100	100	100	100	100	100	100	100
Juvenile Entrainment Projection - Jan5	OMR	CFS	5	>=	-5010		100	100	100	100	100	100	100	100
Juvenile Entrainment Projection - Feb1	OMR	CFS	1	>=	-10		19	23	100	100	81	92	92	100
Juvenile Entrainment Projection - Feb2	OMR	CFS	2	>=	-3510		67	67	100	100	100	100	100	100
Juvenile Entrainment Projection - Feb3	OMR	CFS	3	>=	-5010		100	100	100	100	100	100	100	100
Juvenile Entrainment Projection - Feb4	OMR	CFS	4	>=	-5010		100	100	100	100	100	100	100	100
Juvenile Entrainment Projection - Feb5	OMR	CFS	5	>=	-5010		100	100	100	100	100	100	100	100
Juvenile Entrainment Projection - Mar1	OMR	CFS	1	>=	-10		15	19	96	88	85	85	85	81
Juvenile Entrainment Projection - Mar2	OMR	CFS	2	>=	-10		8	8	75	83	42	58	58	75
Juvenile Entrainment Projection - Mar3	OMR	CFS	3	>=	-3510		43	50	86	100	100	100	100	100
Juvenile Entrainment Projection - Mar4	OMR	CFS	4	>=	-3510		78	89	94	100	100	100	100	100
Juvenile Entrainment Projection - Mar5	OMR	CFS	5	>=	-3510		75	92	92	100	100	100	100	100
Juvenile Entrainment Projection - Apr1	OMR	CFS	0	>=	-2010		100	100	67	100	100	100	100	100
Juvenile Entrainment Projection - May1	OMR	CFS	0	>=	-2010		100	100	72	100	100	100	100	100
Juvenile Entrainment Projection - Jun1	OMR	CFS	0	>=	-3510		54	59	89	100	100	100	100	100
Delta Habitat - JanMar1	Delta_Outflow	CFS	0	>=	34990		46	48	45	43	50	41	41	43

Target is 47%

Metrics for White & Green Sturgeon

Bio Obj	Variable	Units	Year Type	Condition	Threshold	NAA	NAA_ELT	ALT1_ELT	ALT1A_ELT	CS5	CS6	CS7	CS8
Shasta Coldwater Pool Setup1	Shasta_Stor	TAF	0	>=	4200	49	45	48	46	50	62	62	62
Shasta Coldwater Pool Setup2	Shasta_Stor	TAF	0	>=	3800	76	70	73	71	72	78	78	79
Shasta Coldwater Pool Setup3	Shasta_Stor	TAF	0	>=	3600	80	79	79	80	78	84	83	83
Shasta Coldwater Pool Setup4	Shasta_Stor	TAF	0	>=	3000	87	85	88	87	85	88	88	88
Shasta Coldwater Carryover1	Shasta_Stor	TAF	0	>=	2600	67	59	55	57	59	70	66	67
Shasta Coldwater Carryover2	Shasta_Stor	TAF	0	>=	2400	73	70	72	70	72	84	83	84
Shasta Coldwater Carryover3	Shasta_Stor	TAF	0	>=	2200	80	73	77	73	77	88	87	87
Shasta Coldwater Carryover4	Shasta_Stor	TAF	0	>=	1900	85	83	84	83	83	90	89	89
Juvenile Entrainment Projection - Oct	OMR	CFS	0	>=	-5010	24	45	33	100	100	100	100	100
Juvenile Entrainment Projection - Nov	OMR	CFS	0	>=	-5010	40	38	39	100	100	100	100	100
Juvenile Entrainment Projection - Dec	OMR	CFS	0	>=	-5010	13	17	28	39	100	100	100	100
Juvenile Entrainment Projection - Jan1	OMR	CFS	1	>=	-10	8	12	77	69	73	69	69	73
Juvenile Entrainment Projection - Jan2	OMR	CFS	2	>=	-3510	58	67	75	100	100	100	100	100
Juvenile Entrainment Projection - Jan3	OMR	CFS	3	>=	-5010	100	100	100	100	100	100	100	100
Juvenile Entrainment Projection - Jan4	OMR	CFS	4	>=	-5010	100	100	100	100	100	100	100	100
Juvenile Entrainment Projection - Jan5	OMR	CFS	5	>=	-5010	100	100	100	100	100	100	100	100
Juvenile Entrainment Projection - Feb1	OMR	CFS	1	>=	-10	19	23	100	100	81	92	92	100
Juvenile Entrainment Projection - Feb2	OMR	CFS	2	>=	-3510	67	67	100	100	100	100	100	100
Juvenile Entrainment Projection - Feb3	OMR	CFS	3	>=	-5010	100	100	100	100	100	100	100	100
Juvenile Entrainment Projection - Feb4	OMR	CFS	4	>=	-5010	100	100	100	100	100	100	100	100
Juvenile Entrainment Projection - Feb5	OMR	CFS	5	>=	-5010	100	100	100	100	100	100	100	100
Juvenile Entrainment Projection - Mar1	OMR	CFS	1	>=	-10	15	19	96	88	85	85	85	81
Juvenile Entrainment Projection - Mar2	OMR	CFS	2	>=	-10	8	8	75	83	42	58	58	75
Juvenile Entrainment Projection - Mar3	OMR	CFS	3	>=	-3510	43	50	86	100	100	100	100	100
Juvenile Entrainment Projection - Mar4	OMR	CFS	4	>=	-3510	78	89	94	100	100	100	100	100
Juvenile Entrainment Projection - Mar5	OMR	CFS	5	>=	-3510	75	92	92	100	100	100	100	100
Juvenile Entrainment Projection - Apr1	OMR	CFS	0	>=	-2010	100	100	67	100	100	100	100	100
Juvenile Entrainment Projection - May1	OMR	CFS	0	>=	-2010	100	100	72	100	100	100	100	100
Juvenile Entrainment Projection - Jun1	OMR	CFS	0	>=	-3510	54	59	89	100	100	100	100	100
Juvenile Entrainment Projection - Jul	OMR	CFS	0	>=	-5010	9	6	56	43	73	33	39	45
Juvenile Entrainment Projection - Aug	OMR	CFS	0	>=	-5010	13	15	78	63	82	56	55	60
Juvenile Entrainment Projection - Sep	OMR	CFS	0	>=	-5010	18	23	76	99	95	99	96	98
Delta Habitat - AprMay1	Delta_Outflow	CFS	0	>=	24990	35	33	24	24	49	29	30	26

Target is 47%

Metrics for San Joaquin Salmonids

Bio Obj	Variable	Units	Year	Condition	Threshold	NAA	NAA_ELT	ALT1_ELT	ALT1A_ELT	CS5	CS6	CS7	CS8
Juvenile Entrainment Projection - Oct1	OMR	CFS	1	>=	-3510	4	0	12	100	100	100	100	100
Juvenile Entrainment Projection - Oct2	OMR	CFS	2	>=	-3510	17	25	8	100	100	100	100	100
Juvenile Entrainment Projection - Oct3	OMR	CFS	3	>=	-5010	7	50	29	100	100	100	100	100
Juvenile Entrainment Projection - Oct4	OMR	CFS	4	>=	-5010	33	50	33	100	100	100	100	100
Juvenile Entrainment Projection - Oct5	OMR	CFS	5	>=	-5010	42	58	58	100	100	100	100	100
Juvenile Entrainment Projection - Nov1	OMR	CFS	1	>=	-3510	8	0	19	58	62	62	62	62
Juvenile Entrainment Projection - Nov2	OMR	CFS	2	>=	-3510	17	8	0	42	58	67	67	67
Juvenile Entrainment Projection - Nov3	OMR	CFS	3	>=	-5010	21	14	36	100	100	100	100	100
Juvenile Entrainment Projection - Nov4	OMR	CFS	4	>=	-5010	50	50	33	100	100	100	100	100
Juvenile Entrainment Projection - Nov5	OMR	CFS	5	>=	-5010	92	83	67	100	100	100	100	100
Juvenile Entrainment Projection - Dec1	OMR	CFS	1	>=	-3510	12	12	46	46	27	77	77	77
Juvenile Entrainment Projection - Dec2	OMR	CFS	2	>=	-3510	0	0	8	8	25	50	50	50
Juvenile Entrainment Projection - Dec3	OMR	CFS	3	>=	-5010	7	14	29	36	100	100	100	100
Juvenile Entrainment Projection - Dec4	OMR	CFS	4	>=	-5010	6	11	11	11	100	100	100	100
Juvenile Entrainment Projection - Dec5	OMR	CFS	5	>=	-5010	42	42	25	42	100	100	100	100
Juvenile Entrainment Projection - Jan1	OMR	CFS	1	>=	-10	8	12	77	69	73	69	69	73
Juvenile Entrainment Projection - Jan2	OMR	CFS	2	>=	-10	0	0	50	33	33	42	42	42
Juvenile Entrainment Projection - Jan3	OMR	CFS	3	>=	-2510	0	0	21	50	100	100	43	43
Juvenile Entrainment Projection - Jan4	OMR	CFS	4	>=	-2510	0	0	6	44	100	100	33	33
Juvenile Entrainment Projection - Jan5	OMR	CFS	5	>=	-2510	25	33	25	50	100	100	33	25
Juvenile Entrainment Projection - Feb1	OMR	CFS	1	>=	-10	19	23	100	100	81	92	92	100
Juvenile Entrainment Projection - Feb2	OMR	CFS	2	>=	-10	8	8	67	67	67	67	67	75
Juvenile Entrainment Projection - Feb3	OMR	CFS	3	>=	-2510	21	21	86	57	100	100	50	57
Juvenile Entrainment Projection - Feb4	OMR	CFS	4	>=	-2510	11	17	22	22	100	100	17	22
Juvenile Entrainment Projection - Feb5	OMR	CFS	5	>=	-2510	33	25	33	17	100	100	25	25
Juvenile Entrainment Projection - Mar1	OMR	CFS	0	>=	-2510	28	29	78	72	100	100	68	68
Juvenile Entrainment Projection - Apr1	OMR	CFS	0	>=	-2510	100	100	85	100	100	100	100	100
Juvenile Entrainment Projection - May2	OMR	CFS	0	>=	-2510	100	100	79	100	100	100	100	100
Juvenile Entrainment Projection - Jun2	OMR	CFS	0	>=	-2510	21	24	60	59	94	94	55	59