

Appendix C

2023 Fish Operations Plan Spill

Introduction

This appendix provides an evaluation of the target spill described in the 2023 Fish Operations Plan (https://pweb.crohms.org/tmt/documents/fpp/2023/final/FPP23_AppE_03-27-2023.pdf) compared to the actual spill during the 2023 fish spill season from April 1 through August 31. Daily data including FOP spill, actual spill, total river flow, and generation flow are displayed graphically (Figures C-1 through C-8) and in tabular form (Tables C-1 through C-8) for the eight fish passage projects on the lower Snake River and the Lower Columbia River.

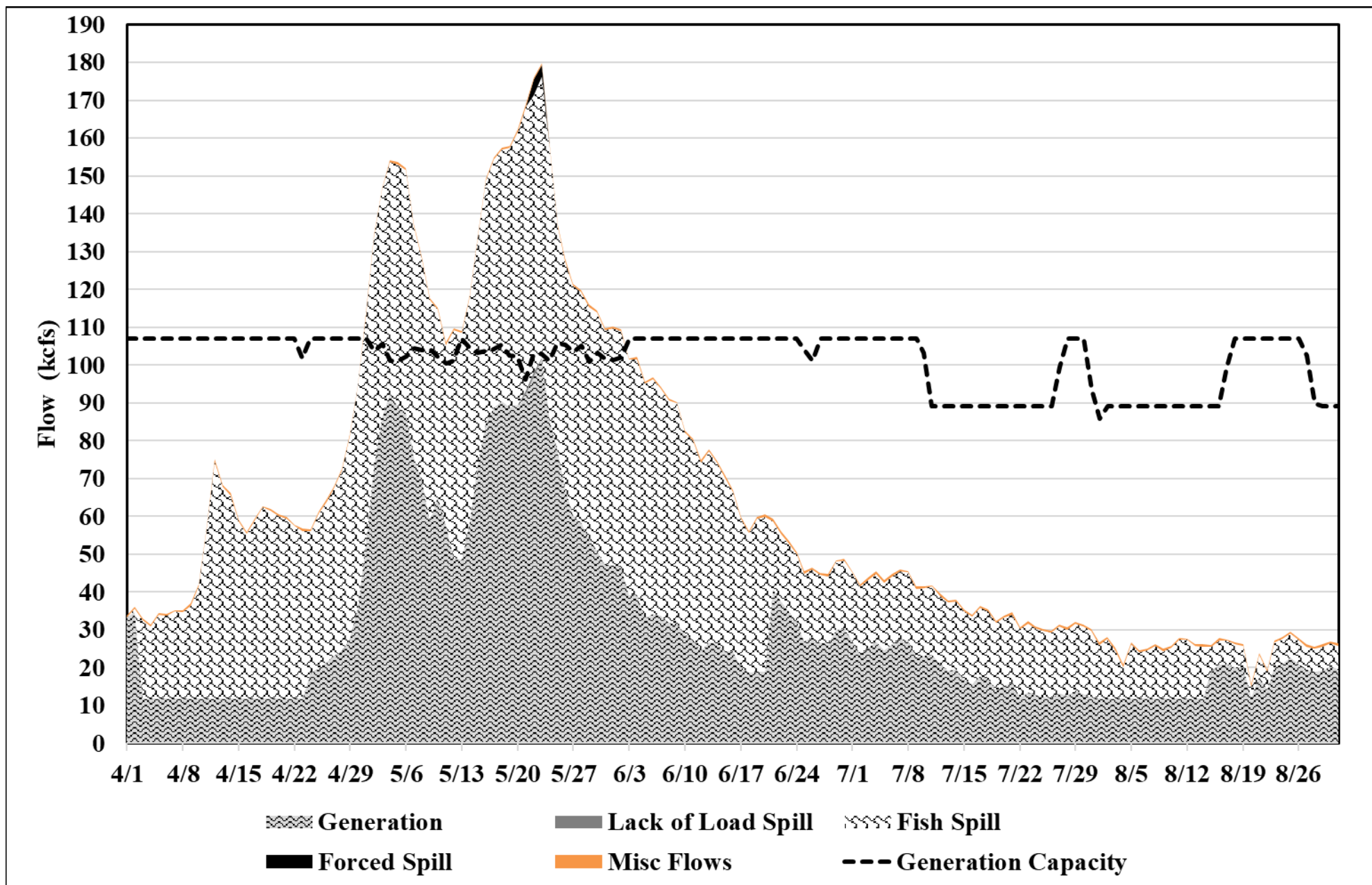


Figure C- 1: Lower Granite daily average project flows

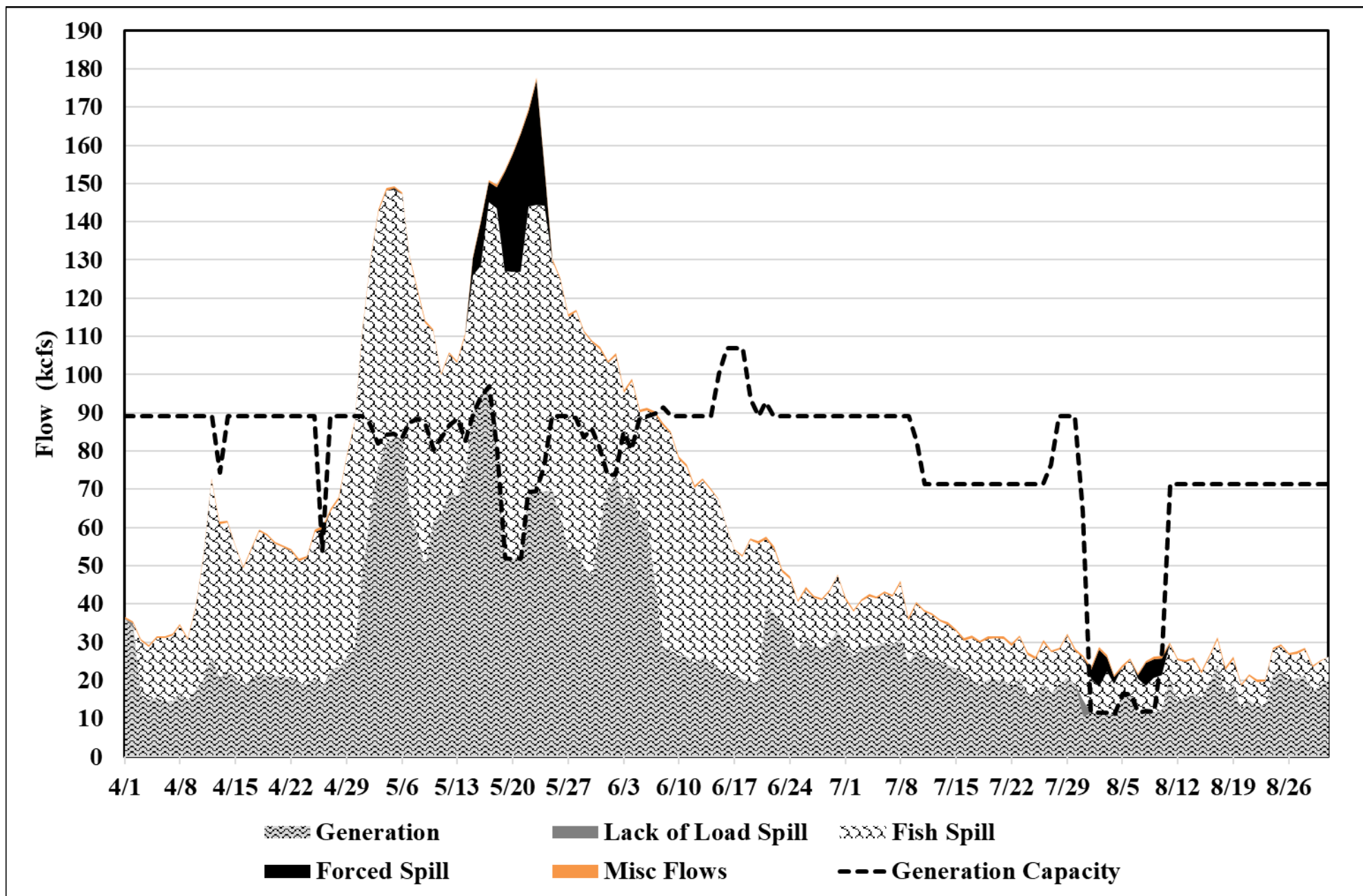


Figure C- 2: Little Goose daily average project flows

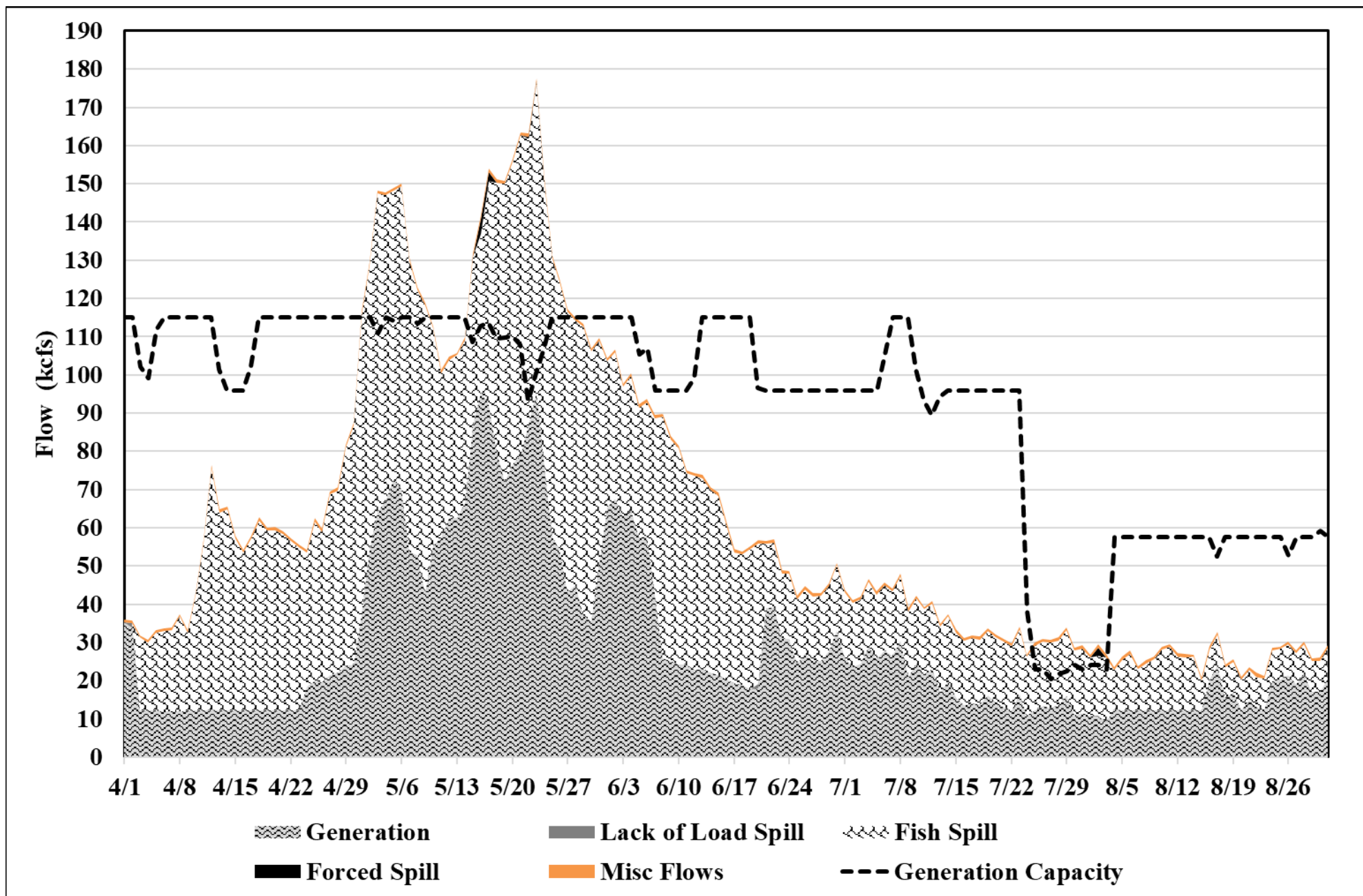


Figure C- 3: Lower Monumental daily average project flows

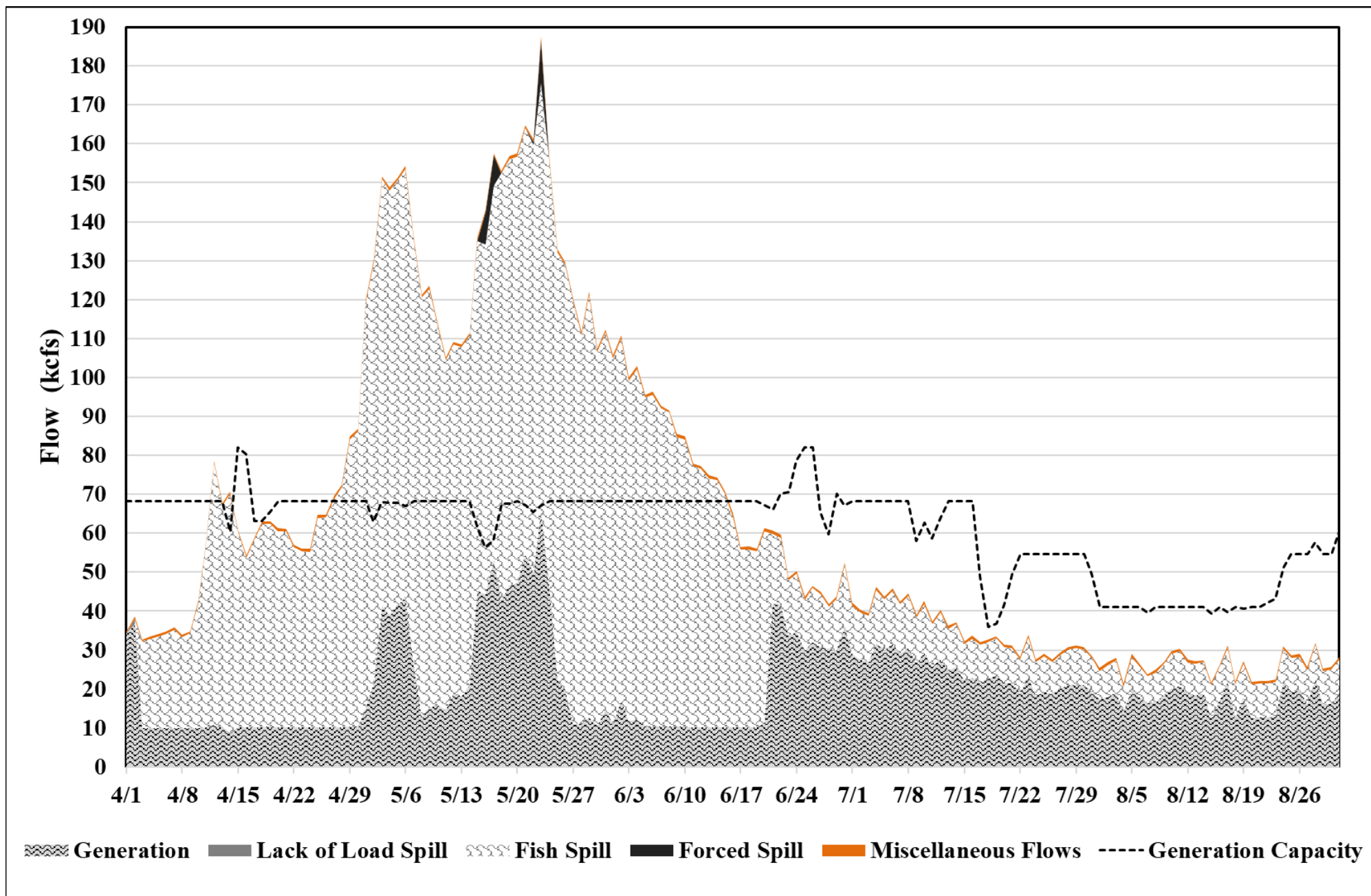


Figure C- 4: Ice Harbor daily average project flows

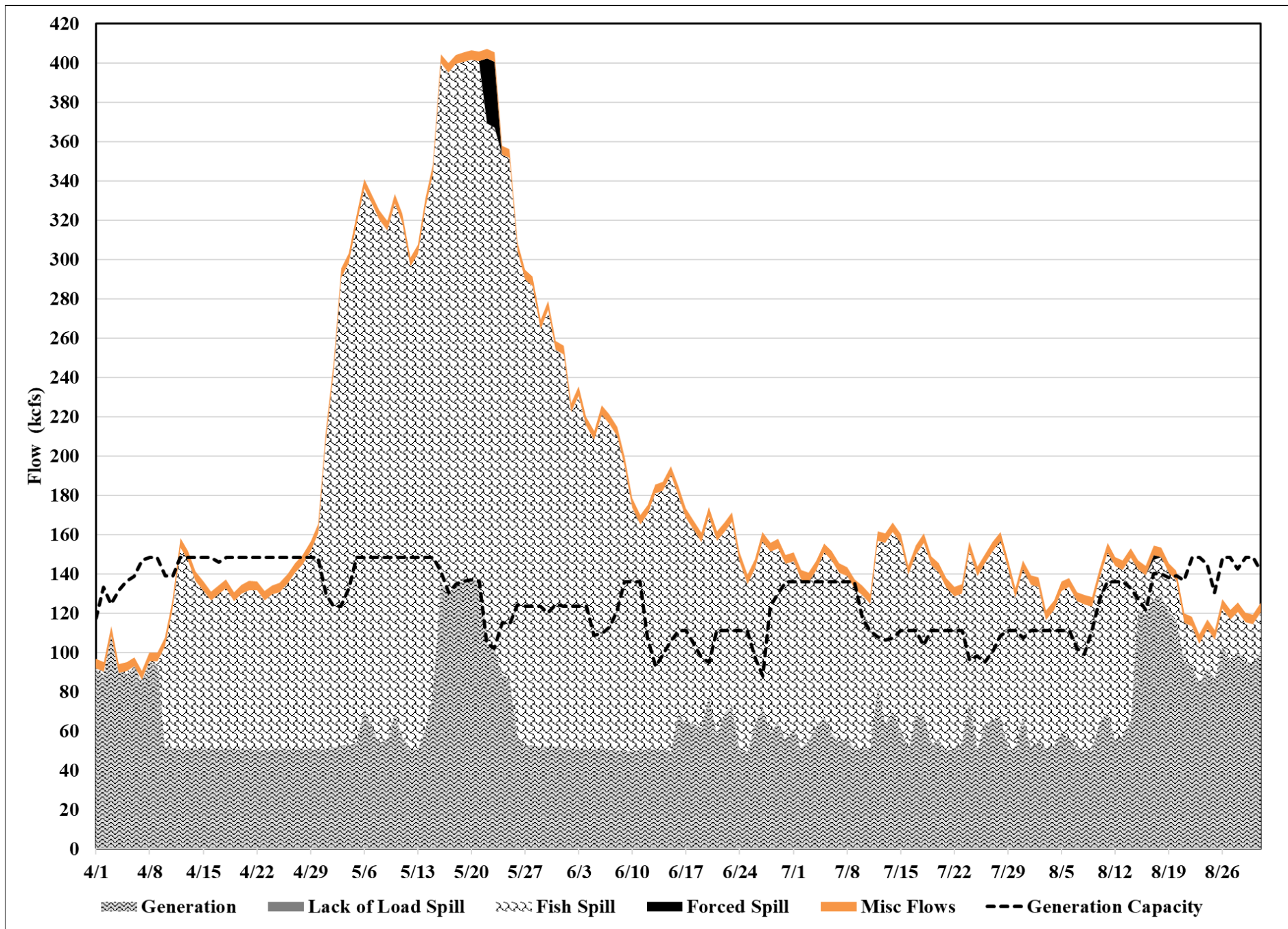


Figure C- 5: McNary daily average project flows

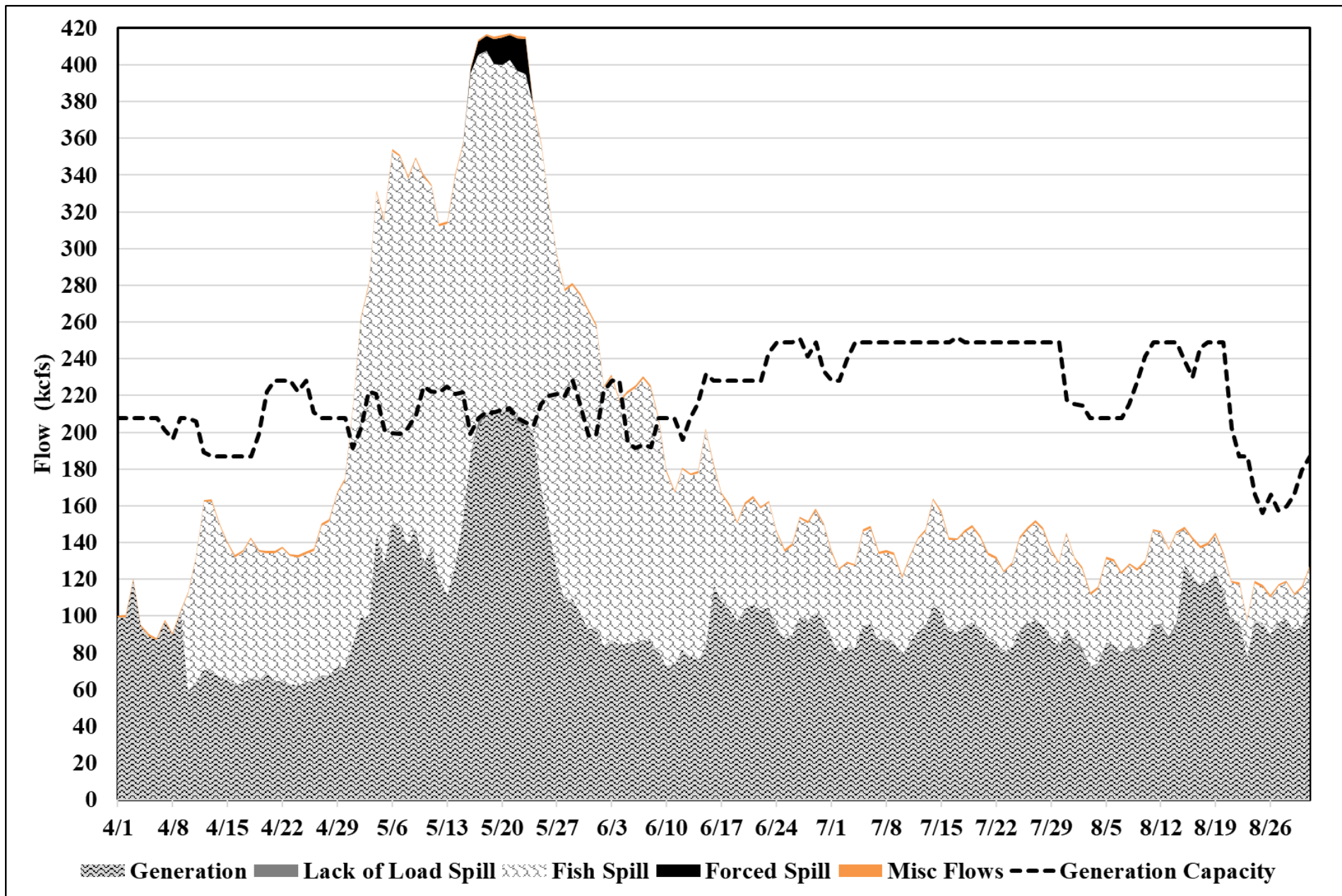


Figure C- 6: John Day daily average project flows

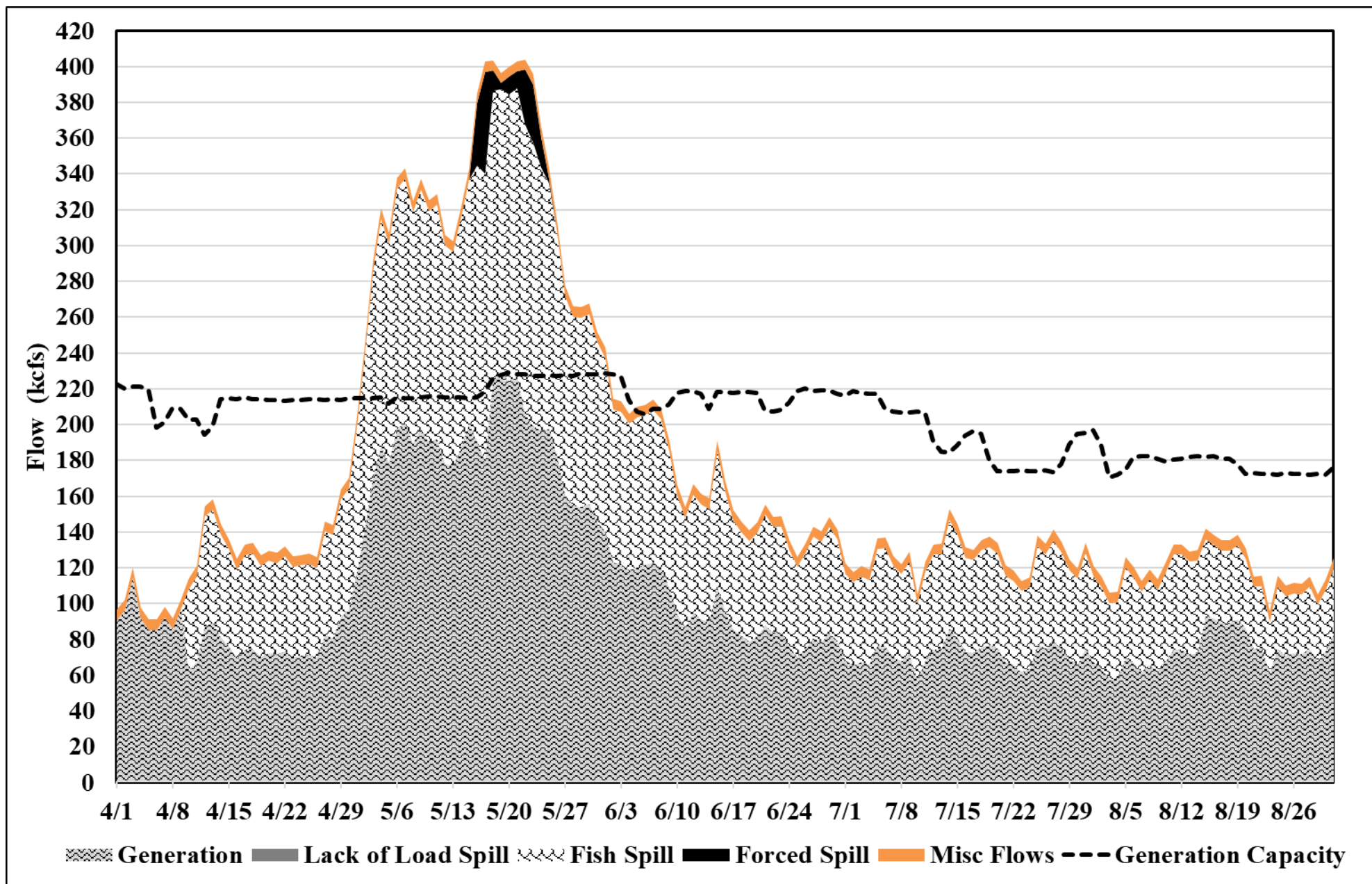


Figure C- 7: The Dalles daily average project flows

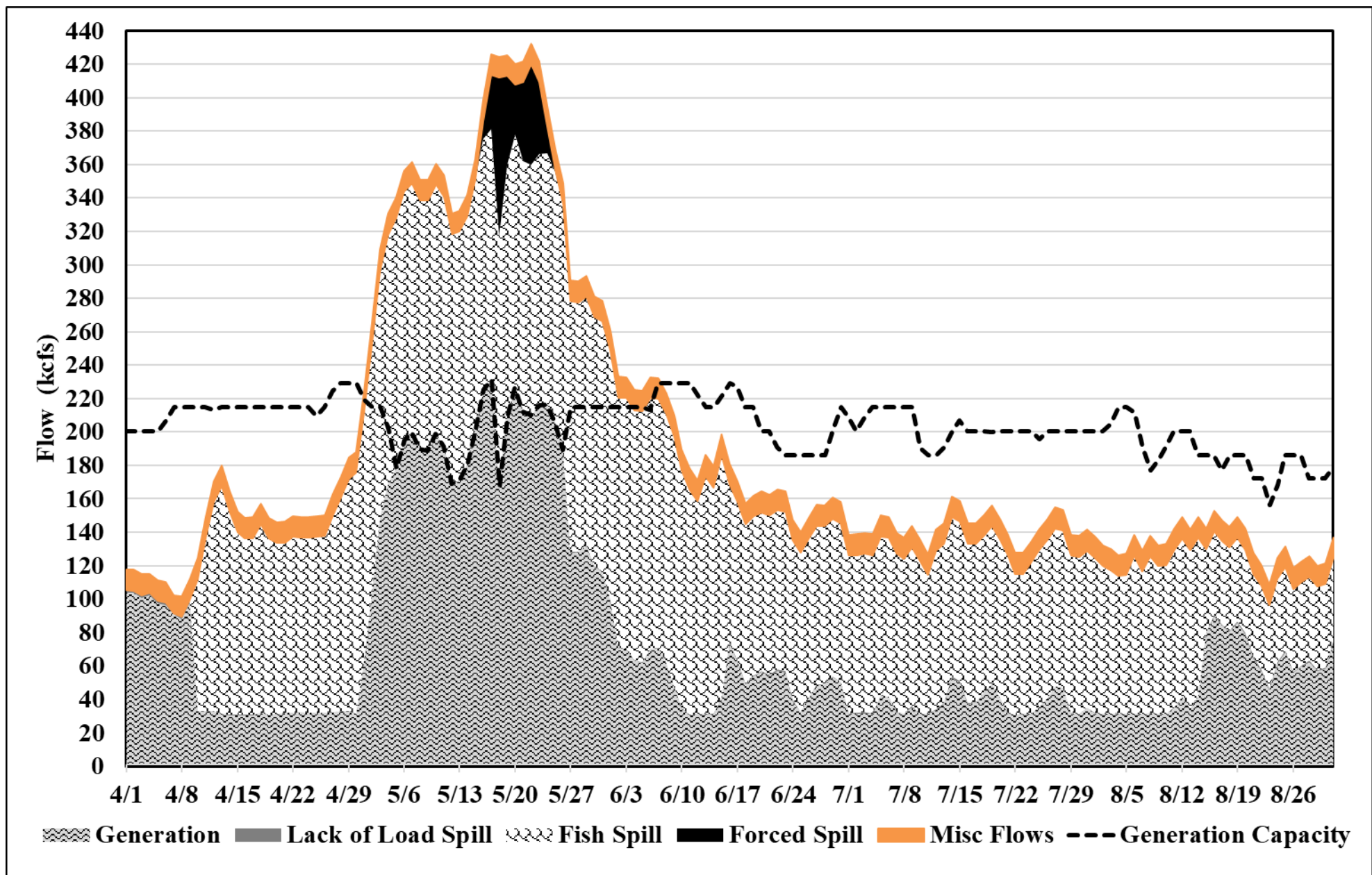


Figure C- 8: Bonneville daily average project flows

Table C- 1: Lower Granite daily average project flows

Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS
04/01/23	34	33	0	0	05/22/23	176	97	79	73	7/12/2023	40	21	18	18
04/02/23	36	35	1	0	05/23/23	180	102	78	74	7/13/2023	38	19	18	18
04/03/23	33	12	21	21	05/24/23	158	85	72	72	7/14/2023	38	19	18	18
04/04/23	31	12	19	19	05/25/23	137	77	60	60	7/15/2023	35	17	18	18
04/05/23	35	12	22	22	05/26/23	128	68	60	61	7/16/2023	35	16	18	18
04/06/23	34	12	22	22	05/27/23	121	60	61	61	7/17/2023	37	18	18	18
04/07/23	35	12	23	23	05/28/23	120	59	61	62	7/18/2023	36	17	18	18
04/08/23	35	12	23	23	05/29/23	116	54	61	62	7/19/2023	33	14	18	18
04/09/23	37	12	25	25	05/30/23	115	51	63	63	7/20/2023	34	15	18	18
04/10/23	42	12	30	30	05/31/23	110	47	62	63	7/21/2023	35	16	18	18
04/11/23	57	12	45	45	06/01/23	110	47	63	63	7/22/2023	31	12	18	18
04/12/23	75	12	63	63	06/02/23	109	47	62	63	7/23/2023	33	14	18	18
04/13/23	68	12	56	56	06/03/23	102	39	62	63	7/24/2023	31	13	18	18
04/14/23	66	12	54	54	06/04/23	102	39	62	63	7/25/2023	30	12	17	18
04/15/23	59	12	47	47	06/05/23	95	33	62	62	7/26/2023	30	12	18	17
04/16/23	56	12	44	43	06/06/23	97	34	62	63	7/27/2023	31	13	18	18
04/17/23	59	12	47	47	06/07/23	94	34	60	60	7/28/2023	31	13	18	17
04/18/23	63	12	51	50	06/08/23	91	32	59	59	7/29/2023	32	14	18	18
04/19/23	62	12	50	50	06/09/23	90	32	58	59	7/30/2023	32	13	18	18
04/20/23	61	12	48	48	06/10/23	83	29	53	53	7/31/2023	30	12	18	18
04/21/23	60	12	47	47	06/11/23	81	28	53	53	8/1/2023	27	12	14	14
04/22/23	58	12	46	46	06/12/23	75	24	50	50	8/2/2023	29	12	17	16
04/23/23	57	12	44	44	06/13/23	78	27	51	51	8/3/2023	26	12	14	13
04/24/23	57	19	38	37	06/14/23	75	26	48	48	8/4/2023	22	12	9	8
04/25/23	62	20	41	41	06/15/23	71	24	46	46	8/5/2023	28	12	16	14
04/26/23	65	21	43	42	06/16/23	67	24	42	42	8/6/2023	26	12	13	12
04/27/23	68	23	44	44	06/17/23	60	20	39	39	8/7/2023	26	12	13	12
04/28/23	73	24	48	48	06/18/23	56	19	37	37	8/8/2023	27	12	15	14
04/29/23	82	27	54	54	06/19/23	60	19	41	41	8/9/2023	26	12	14	12
04/30/23	95	36	59	59	06/20/23	60	20	40	40	8/10/2023	27	12	15	13
05/01/23	114	53	61	61	06/21/23	60	41	19	18	8/11/2023	29	12	17	16
05/02/23	134	73	61	61	06/22/23	56	37	18	18	8/12/2023	29	12	16	15

05/03/23	147	86	60	61	06/23/23	54	35	18	18	8/13/2023	27	12	15	14
05/04/23	154	92	61	62	06/24/23	50	32	18	18	8/14/2023	27	12	14	14
05/05/23	154	89	64	64	06/25/23	46	27	18	18	8/15/2023	26	19	7	6
05/06/23	152	87	64	64	06/26/23	47	28	18	18	8/16/2023	28	21	7	6
05/07/23	137	76	61	61	06/27/23	45	27	18	18	8/17/2023	28	21	6	6
05/08/23	129	70	59	59	06/28/23	45	26	18	18	8/18/2023	27	20	6	6
05/09/23	118	59	59	59	06/29/23	49	30	19	18	8/19/2023	27	20	6	6
05/10/23	115	65	50	50	06/30/23	49	31	18	17	8/20/2023	17	12	4	3
05/11/23	106	58	48	50	07/01/23	46	27	18	18	8/21/2023	24	18	6	6
05/12/23	110	49	60	60	07/02/23	43	24	18	18	8/22/2023	21	15	6	5
05/13/23	109	48	60	60	07/03/23	44	25	18	18	8/23/2023	27	20	7	7
05/14/23	119	59	60	60	07/04/23	46	27	18	18	8/24/2023	29	21	7	7
05/15/23	134	74	60	61	07/05/23	44	25	18	18	8/25/2023	29	22	6	6
05/16/23	150	85	64	64	07/06/23	45	26	18	18	8/26/2023	28	21	6	6
05/17/23	155	89	66	66	07/07/23	47	28	19	18	8/27/2023	26	20	6	6
05/18/23	158	90	67	67	07/08/23	46	27	18	18	8/28/2023	26	19	6	6
05/19/23	158	89	69	69	07/09/23	42	23	18	18	8/29/2023	26	19	6	6
05/20/23	163	90	72	72	07/10/23	42	23	18	18	8/30/2023	27	20	6	6
05/21/23	169	92	77	75	07/11/23	42	23	18	18	8/31/2021	27	20	6	6

Table C- 2: Little Goose daily average project flows

Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS
04/01/23	37	36	0	0	05/22/23	170	69	100	75	7/12/2023	38	26	11	11
04/02/23	35	34	1	0	05/23/23	178	69	108	75	7/13/2023	36	25	11	11
04/03/23	31	17	14	14	05/24/23	155	69	85	75	7/14/2023	35	24	11	11
04/04/23	29	15	14	14	05/25/23	130	70	60	60	7/15/2023	34	23	10	10
04/05/23	32	16	16	16	05/26/23	125	63	62	62	7/16/2023	31	21	9	9
04/06/23	32	15	17	17	05/27/23	116	54	61	61	7/17/2023	32	20	11	11
04/07/23	32	15	17	17	05/28/23	117	55	61	61	7/18/2023	31	19	12	12
04/08/23	35	17	18	18	05/29/23	112	50	61	61	7/19/2023	32	20	11	11
04/09/23	31	15	16	16	05/30/23	109	47	61	61	7/20/2023	32	20	11	11
04/10/23	40	17	22	22	05/31/23	107	60	46	46	7/21/2023	31	20	11	11
04/11/23	53	20	32	32	06/01/23	104	71	33	33	7/22/2023	30	18	11	11
04/12/23	73	26	46	46	06/02/23	106	74	31	31	7/23/2023	32	21	11	11
04/13/23	62	20	41	40	06/03/23	96	66	29	29	7/24/2023	27	16	11	11

04/14/23	62	23	39	39	06/04/23	99	70	28	28	7/25/2023	28	17	11	11
04/15/23	55	21	34	34	06/05/23	91	62	28	28	7/26/2023	31	19	11	11
04/16/23	50	18	31	31	06/06/23	91	62	28	28	7/27/2023	28	17	11	11
04/17/23	55	20	35	35	06/07/23	90	46	44	44	7/28/2023	29	19	9	9
04/18/23	60	22	37	37	06/08/23	88	29	58	58	7/29/2023	33	21	12	12
04/19/23	58	21	37	37	06/09/23	85	28	57	57	7/30/2023	29	19	9	9
04/20/23	56	21	35	35	06/10/23	79	26	52	52	7/31/2023	27	11	16	11
04/21/23	55	21	34	34	06/11/23	77	26	50	50	8/1/2023	24	12	12	9
04/22/23	54	21	33	33	06/12/23	71	25	46	46	8/2/2023	29	11	17	7
04/23/23	52	19	32	32	06/13/23	73	26	46	46	8/3/2023	27	11	15	11
04/24/23	53	19	33	33	06/14/23	71	24	46	46	8/4/2023	22	11	10	8
04/25/23	60	21	38	38	06/15/23	68	23	44	44	8/5/2023	25	16	8	8
04/26/23	60	18	42	40	06/16/23	61	22	38	38	8/6/2023	26	16	9	9
04/27/23	65	23	41	41	06/17/23	55	21	33	33	8/7/2023	22	11	10	9
04/28/23	68	23	44	44	06/18/23	53	20	32	32	8/8/2023	25	12	13	7
04/29/23	79	26	52	52	06/19/23	57	19	37	37	8/9/2023	27	12	14	9
04/30/23	88	28	59	59	06/20/23	56	19	36	36	8/10/2023	27	12	14	9
05/01/23	112	48	64	64	06/21/23	58	40	17	17	8/11/2023	30	20	9	9
05/02/23	130	64	66	66	06/22/23	55	38	17	17	8/12/2023	26	14	11	11
05/03/23	143	77	66	66	06/23/23	49	34	15	15	8/13/2023	26	16	10	10
05/04/23	149	82	66	66	06/24/23	47	32	14	14	8/14/2023	27	16	10	10
05/05/23	149	84	65	65	06/25/23	41	28	12	12	8/15/2023	23	15	7	7
05/06/23	148	83	64	64	06/26/23	45	31	13	13	8/16/2023	27	20	7	7
05/07/23	131	66	65	65	06/27/23	42	29	13	13	8/17/2023	31	24	7	7
05/08/23	123	58	65	65	06/28/23	42	29	12	12	8/18/2023	23	16	6	6
05/09/23	114	50	64	64	06/29/23	44	30	13	13	8/19/2023	26	19	6	6
05/10/23	112	61	50	50	06/30/23	48	33	14	14	8/20/2023	19	12	6	6
05/11/23	101	63	37	37	07/01/23	42	29	12	12	8/21/2023	22	15	6	6
05/12/23	106	69	36	36	07/02/23	39	26	12	12	8/22/2023	20	13	6	6
05/13/23	104	68	35	35	07/03/23	41	28	12	12	8/23/2023	20	13	6	6
05/14/23	111	73	37	37	07/04/23	43	29	13	13	8/24/2023	29	21	7	7
05/15/23	131	90	41	36	07/05/23	42	29	13	13	8/25/2023	29	22	7	7
05/16/23	141	94	46	34	07/06/23	43	30	13	13	8/26/2023	27	20	7	7
05/17/23	151	97	54	48	07/07/23	42	29	13	13	8/27/2023	28	20	7	7
05/18/23	150	80	69	63	07/08/23	46	32	14	14	8/28/2023	29	21	7	7
05/19/23	154	52	101	75	07/09/23	36	25	11	11	8/29/2023	24	17	7	7
05/20/23	158	52	106	75	07/10/23	41	28	12	12	8/30/2023	25	19	7	7
05/21/23	163	52	111	75	07/11/23	38	27	12	12	8/31/2023	27	20	6	6

Table C- 3: Lower Monumental daily average project flows

Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS
04/01/23	36	35	0	0	05/22/23	163	87	75	80	7/12/2023	41	23	17	17
04/02/23	36	34	1	1	05/23/23	178	96	81	81	7/13/2023	35	17	17	17
04/03/23	32	12	19	19	05/24/23	151	76	74	79	7/14/2023	38	20	17	17
04/04/23	31	12	18	18	05/25/23	131	57	73	73	7/15/2023	34	16	17	17
04/05/23	33	12	20	20	05/26/23	125	54	70	72	7/16/2023	31	13	17	17
04/06/23	34	12	21	21	05/27/23	117	43	73	74	7/17/2023	32	14	17	17
04/07/23	34	12	21	21	05/28/23	115	45	69	73	7/18/2023	32	14	17	17
04/08/23	37	12	25	25	05/29/23	113	37	75	76	7/19/2023	34	16	17	17
04/09/23	33	12	20	20	05/30/23	107	35	71	72	7/20/2023	32	14	17	17
04/10/23	43	12	30	30	05/31/23	110	51	58	59	7/21/2023	31	13	17	17
04/11/23	57	12	44	44	06/01/23	105	65	38	40	7/22/2023	30	12	17	17
04/12/23	76	12	63	64	06/02/23	107	68	38	38	7/23/2023	34	16	17	17
04/13/23	65	12	52	52	06/03/23	98	63	34	35	7/24/2023	27	11	16	16
04/14/23	66	12	53	53	06/04/23	101	65	35	35	7/25/2023	31	12	18	17
04/15/23	58	12	45	45	06/05/23	93	58	34	35	7/26/2023	31	13	17	17
04/16/23	54	12	41	41	06/06/23	94	58	35	35	7/27/2023	31	13	17	17
04/17/23	58	12	45	45	06/07/23	90	43	46	47	7/28/2023	31	14	17	17
04/18/23	63	12	50	50	06/08/23	90	26	63	63	7/29/2023	34	16	17	17
04/19/23	60	12	47	47	06/09/23	84	25	58	58	7/30/2023	29	11	17	17
04/20/23	60	12	47	47	06/10/23	81	24	57	57	7/31/2023	29	12	17	17
04/21/23	59	12	46	46	06/11/23	75	24	50	50	8/1/2023	27	11	15	15
04/22/23	57	12	44	44	06/12/23	74	23	51	51	8/2/2023	29	11	18	16
04/23/23	56	12	43	43	06/13/23	74	23	50	50	8/3/2023	27	9	17	17
04/24/23	54	18	35	35	06/14/23	71	22	48	48	8/4/2023	24	13	10	10
04/25/23	62	20	42	42	06/15/23	69	22	47	47	8/5/2023	26	12	13	13
04/26/23	60	20	39	39	06/16/23	62	20	41	41	8/6/2023	28	12	15	15
04/27/23	69	22	47	47	06/17/23	54	19	34	34	8/7/2023	24	12	11	11
04/28/23	71	22	48	48	06/18/23	54	19	34	34	8/8/2023	25	12	12	12
04/29/23	82	24	57	57	06/19/23	55	18	37	37	8/9/2023	26	12	14	13
04/30/23	87	24	63	63	06/20/23	57	18	38	37	8/10/2023	29	12	16	16

05/01/23	117	38	78	79	06/21/23	57	39	17	17	8/11/2023	30	12	17	17
05/02/23	130	54	75	82	06/22/23	57	39	17	17	8/12/2023	27	12	14	14
05/03/23	148	64	83	84	06/23/23	49	31	17	17	8/13/2023	27	12	14	14
05/04/23	148	67	80	82	06/24/23	49	31	17	17	8/14/2023	27	12	14	14
05/05/23	149	73	76	83	06/25/23	42	24	17	17	8/15/2023	21	12	8	8
05/06/23	150	70	79	79	06/26/23	45	27	17	17	8/16/2023	29	20	8	8
05/07/23	131	54	76	76	06/27/23	43	25	17	17	8/17/2023	33	24	8	8
05/08/23	123	53	69	75	06/28/23	43	25	17	17	8/18/2023	24	15	8	8
05/09/23	119	43	75	75	06/29/23	46	28	17	17	8/19/2023	26	17	8	8
05/10/23	113	55	57	59	06/30/23	51	33	17	17	8/20/2023	21	12	8	8
05/11/23	101	58	43	43	07/01/23	44	26	17	17	8/21/2023	24	15	8	8
05/12/23	105	63	41	43	07/02/23	41	23	17	17	8/22/2023	22	13	8	8
05/13/23	106	62	43	43	07/03/23	42	24	17	17	8/23/2023	21	13	8	8
05/14/23	110	66	43	44	07/04/23	47	29	17	17	8/24/2023	29	20	8	8
05/15/23	132	87	45	44	07/05/23	43	26	17	17	8/25/2023	29	20	8	8
05/16/23	142	96	45	43	07/06/23	46	28	17	17	8/26/2023	30	21	8	8
05/17/23	154	92	61	59	07/07/23	44	27	17	17	8/27/2023	28	19	8	8
05/18/23	151	80	71	77	07/08/23	48	30	17	17	8/28/2023	31	22	8	8
05/19/23	151	72	78	78	07/09/23	39	21	18	17	8/29/2023	26	17	8	8
05/20/23	157	77	79	81	07/10/23	42	24	17	17	8/30/2023	26	17	8	8
05/21/23	164	79	84	84	07/11/23	40	22	17	17	8/31/2023	29	21	8	8

Table C- 4: Ice Harbor daily average project flows

Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS
04/01/23	35	34	0	0	05/22/23	161	50	111	110	7/12/23	40	28	12	12
04/02/23	39	37	1	0	05/23/23	187	66	121	110	7/13/23	36	25	11	11
04/03/23	33	10	23	23	05/24/23	157	46	109	109	7/14/23	37	26	11	11
04/04/23	34	10	23	23	05/25/23	133	23	110	110	7/15/23	32	22	10	10
4/5/23	34	10	24	24	5/26/23	130	20	109	109	7/16/23	34	23	10	10
4/6/23	35	10	25	25	5/27/23	120	11	109	109	7/17/23	32	22	10	10
4/7/23	36	10	26	26	5/28/23	112	11	99	99	7/18/23	33	23	10	10
4/8/23	34	10	24	24	5/29/23	122	13	109	109	7/19/23	34	24	10	10
4/9/23	35	10	25	25	5/30/23	108	11	96	96	7/20/23	31	22	9	9

4/10/23	43	10	33	33	5/31/23	112	15	97	97	7/21/23	31	22	9	9
4/11/23	58	10	47	47	6/1/23	106	11	94	94	7/22/23	28	19	9	9
4/12/23	79	11	67	67	6/2/23	111	17	93	93	7/23/23	34	23	10	10
4/13/23	68	10	57	57	6/3/23	100	12	87	87	7/24/23	28	18	9	9
4/14/23	71	8	62	62	6/4/23	103	12	90	90	7/25/23	29	19	9	9
4/15/23	61	10	50	50	6/5/23	96	11	84	84	7/26/23	28	19	8	8
4/16/23	54	10	44	44	6/6/23	96	10	85	85	7/27/23	29	20	8	8
4/17/23	59	10	48	48	6/7/23	93	10	82	82	7/28/23	31	21	9	9
4/18/23	63	10	52	52	6/8/23	92	10	81	81	7/29/23	31	21	9	9
4/19/23	63	11	52	52	6/9/23	85	10	75	75	7/30/23	31	21	9	9
4/20/23	62	10	51	51	6/10/23	85	10	74	74	7/31/23	29	19	9	9
4/21/23	61	10	51	51	6/11/23	78	10	67	67	8/1/23	25	17	7	7
4/22/23	57	10	47	47	6/12/23	77	10	66	66	8/2/23	27	18	8	8
4/23/23	56	10	46	46	6/13/23	75	10	64	64	8/3/23	28	19	8	8
4/24/23	56	10	45	45	6/14/23	74	10	64	64	8/4/23	21	14	6	6
4/25/23	65	10	54	54	6/15/23	71	10	60	60	8/5/23	29	20	9	9
4/26/23	65	10	54	54	6/16/23	65	10	54	54	8/6/23	26	18	8	8
4/27/23	70	10	59	59	6/17/23	57	10	46	46	8/7/23	24	16	7	7
4/28/23	72	10	62	62	6/18/23	57	10	46	46	8/8/23	25	17	7	7
4/29/23	85	10	74	74	6/19/23	56	10	46	46	8/9/23	27	18	8	8
4/30/23	87	10	76	76	6/20/23	61	11	50	50	8/10/23	30	20	9	9
5/1/23	120	15	104	104	6/21/23	61	42	18	18	8/11/23	30	21	9	9
5/2/23	130	22	108	108	6/22/23	60	41	17	17	8/12/23	28	19	8	8
5/3/23	152	41	110	110	6/23/23	49	34	14	14	8/13/23	27	18	8	8
5/4/23	149	39	109	109	6/24/23	50	35	15	15	8/14/23	27	19	8	8
5/5/23	151	41	109	109	6/25/23	44	30	13	13	8/15/23	22	13	9	9
5/6/23	154	44	110	110	6/26/23	47	32	14	14	8/16/23	26	17	9	9
5/7/23	136	26	109	109	6/27/23	45	31	14	14	8/17/23	31	22	9	9
5/8/23	121	13	108	108	6/28/23	42	30	11	11	8/18/23	22	12	9	9
5/9/23	124	15	108	108	6/29/23	44	30	13	13	8/19/23	27	18	9	9
5/10/23	114	16	98	98	6/30/23	52	36	16	16	8/20/23	22	13	9	9
5/11/23	105	15	90	90	7/1/23	42	29	13	13	8/21/23	22	13	9	9
5/12/23	109	19	90	90	7/2/23	40	28	12	12	8/22/23	22	13	9	9
5/13/23	109	18	90	90	7/3/23	39	27	12	12	8/23/23	22	13	9	9
5/14/23	112	21	90	90	7/4/23	46	32	14	14	8/24/23	31	22	9	9
5/15/23	136	45	90	90	7/5/23	44	30	13	13	8/25/23	29	19	9	9

5/16/23	143	44	98	90	7/6/23	46	32	14	14	8/26/23	29	20	9	9
5/17/23	158	53	104	96	7/7/23	42	29	13	13	8/27/23	26	16	9	9
5/18/23	153	43	110	110	7/8/23	45	31	13	13	8/28/23	32	23	9	9
5/19/23	157	47	110	110	7/9/23	39	27	12	12	8/29/23	25	16	9	9
5/20/23	158	47	110	110	7/10/23	43	29	13	13	8/30/23	26	16	9	9
5/21/23	165	55	110	110	7/11/23	37	26	11	11	8/31/23	28	19	9	9

Table C- 5: McNary daily average project flows

Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS
04/01/23	97	92	0	0	05/22/23	407	104	298	265	7/12/2023	162	83	74	74
04/02/23	95	89	2	2	05/23/23	405	102	298	265	7/13/2023	161	64	92	92
04/03/23	113	108	0	0	05/24/23	358	88	265	265	7/14/2023	167	70	92	92
04/04/23	94	89	0	0	05/25/23	356	87	265	265	7/15/2023	160	61	95	95
04/05/23	95	89	2	2	05/26/23	309	56	248	248	7/16/2023	144	50	90	90
04/06/23	97	93	0	0	05/27/23	295	53	237	237	7/17/2023	154	67	82	82
04/07/23	91	84	2	2	05/28/23	291	53	234	234	7/18/2023	161	68	88	88
04/08/23	100	95	0	0	05/29/23	269	52	213	213	7/19/2023	149	53	91	91
04/09/23	100	94	2	2	05/30/23	279	52	222	222	7/20/2023	145	56	85	85
04/10/23	107	52	51	51	05/31/23	259	52	202	202	7/21/2023	138	51	83	83
04/11/23	126	51	70	70	06/02/23	256	51	200	200	7/22/2023	133	50	79	79
04/12/23	158	51	102	102	06/02/23	227	51	171	171	7/23/2023	135	54	76	76
04/13/23	152	51	96	96	06/03/23	235	51	180	180	7/24/2023	156	75	77	77
04/14/23	141	51	85	85	06/04/23	220	51	164	164	7/25/2023	144	50	89	89
04/15/23	136	51	80	80	06/05/23	213	51	157	157	7/26/2023	150	64	82	82
04/16/23	131	51	75	75	06/06/23	226	51	170	170	7/27/2023	156	66	86	86
04/17/23	134	51	79	79	06/07/23	221	51	166	166	7/28/2023	162	68	89	89
04/18/23	137	51	82	82	06/08/23	215	50	160	160	7/29/2023	147	51	92	92
04/19/23	131	51	75	75	06/09/23	199	50	145	145	7/30/2023	133	51	77	77
04/20/23	134	51	79	79	06/10/23	179	50	125	125	7/31/2023	147	67	75	75
04/21/23	136	50	81	81	06/11/23	170	50	115	115	8/1/2023	139	51	84	84
04/22/23	136	51	81	81	06/12/23	175	51	120	120	8/2/2023	138	55	79	79
04/23/23	131	50	76	76	06/13/23	186	51	130	130	8/3/2023	121	50	66	66
04/24/23	134	50	79	79	06/14/23	187	50	132	132	8/4/2023	126	53	69	69

04/25/23	135	51	80	80	06/15/23	195	50	140	140	8/5/2023	136	59	72	72
04/26/23	140	51	84	84	06/16/23	185	69	111	111	8/6/2023	138	56	77	77
04/27/23	145	51	90	90	06/17/23	173	63	105	105	8/7/2023	131	50	75	75
04/28/23	149	51	94	94	06/18/23	167	63	99	99	8/8/2023	129	50	74	74
04/29/23	156	50	101	101	06/19/23	161	61	95	95	8/9/2023	128	50	73	73
04/30/23	165	51	110	110	06/20/23	174	78	92	92	8/10/2023	142	65	73	73
05/01/23	211	51	156	156	06/21/23	162	58	99	99	8/11/2023	156	70	81	81
05/02/23	248	52	192	192	06/22/23	166	69	92	92	8/12/2023	149	55	89	89
05/03/23	295	52	238	238	06/23/23	171	72	94	94	8/13/2023	147	57	85	85
05/04/23	303	53	245	245	06/24/23	152	50	97	97	8/14/2023	153	65	83	83
05/05/23	322	54	264	264	06/25/23	140	49	86	86	8/15/2023	147	122	20	20
05/06/23	341	71	265	265	06/26/23	148	63	80	80	8/16/2023	144	119	20	20
05/07/23	333	62	266	266	06/27/23	161	73	84	84	8/17/2023	154	127	22	20
05/08/23	325	54	266	266	06/28/23	156	59	92	92	8/18/2023	153	129	20	20
05/09/23	320	55	260	260	06/29/23	158	64	90	90	8/19/2023	145	121	20	20
05/10/23	333	69	260	260	06/30/23	150	55	90	90	8/20/2023	141	117	20	20
05/11/23	324	57	262	262	07/01/23	151	61	85	85	8/21/2023	120	95	20	20
05/12/23	301	51	245	245	07/02/23	142	51	86	86	8/22/2023	118	93	20	20
05/13/23	307	51	252	252	07/03/23	140	55	81	81	8/23/2023	109	85	20	20
05/14/23	331	61	265	265	07/04/23	146	62	80	80	8/24/2023	117	92	20	20
05/15/23	348	79	265	265	07/05/23	155	68	83	83	8/25/2023	111	86	20	20
05/16/23	405	135	265	265	07/06/23	152	59	88	88	8/26/2023	127	103	20	20
05/17/23	400	130	265	265	07/07/23	145	55	86	86	8/27/2023	122	97	20	20
05/18/23	404	135	265	265	07/08/23	144	56	83	83	8/28/2023	126	101	20	20
05/19/23	405	136	265	265	07/09/23	137	50	82	82	8/29/2023	120	95	20	20
05/20/23	406	137	265	265	07/10/23	134	51	78	78	8/30/2023	119	94	20	20
05/21/23	406	136	265	265	07/11/23	129	51	74	74	8/31/2023	125	101	20	20

Table C- 6: John Day daily average project flows

Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS
4/1/23	100	99	0	0	5/22/23	416	205	210	190	7/12/2023	143	92	50	50
4/2/23	101	99	0	0	5/23/23	415	204	210	190	7/13/2023	147	95	51	51
4/3/23	121	119	0	0	5/24/23	380	200	178	178	7/14/2023	164	106	57	57
4/4/23	95	94	0	0	5/25/23	357	169	187	187	7/15/2023	157	101	55	55

4/5/23	90	89	0	0	5/26/23	326	148	177	177	7/16/2023	143	92	49	49
4/6/23	88	87	0	0	5/27/23	298	125	172	172	7/17/2023	143	92	50	50
4/7/23	98	97	0	0	5/28/23	278	108	169	169	7/18/2023	147	94	51	51
4/8/23	91	90	0	0	5/29/23	281	110	170	170	7/19/2023	150	96	52	52
4/9/23	103	102	0	0	5/30/23	275	101	173	173	7/20/2023	144	92	50	50
4/10/23	113	59	54	54	5/31/23	267	93	173	173	7/21/2023	135	87	47	47
4/11/23	132	64	67	67	6/1/23	259	93	164	164	7/22/2023	132	85	46	46
4/12/23	163	71	91	91	6/2/23	225	84	140	140	7/23/2023	125	80	43	43
4/13/23	164	70	93	93	6/3/23	232	87	143	143	7/24/2023	129	83	45	45
4/14/23	150	67	82	82	6/4/23	218	84	132	132	7/25/2023	143	92	50	50
4/15/23	141	65	74	74	6/5/23	222	85	136	136	7/26/2023	148	95	52	52
4/16/23	133	63	69	69	6/6/23	225	85	139	139	7/27/2023	152	98	53	53
4/17/23	136	64	72	72	6/7/23	231	87	142	142	7/28/2023	148	95	52	52
4/18/23	143	66	76	76	6/8/23	226	86	138	138	7/29/2023	137	88	47	47
4/19/23	136	65	71	71	6/9/23	207	80	126	126	7/30/2023	130	83	45	45
4/20/23	135	69	65	65	6/10/23	180	73	105	105	7/31/2023	146	94	51	51
4/21/23	136	64	70	70	6/11/23	168	74	93	93	8/1/2023	132	85	46	46
4/22/23	138	65	72	72	6/12/23	181	82	98	98	8/2/2023	127	81	45	44
4/23/23	134	63	70	70	6/13/23	178	78	98	98	8/3/2023	113	72	39	39
4/24/23	133	62	70	70	6/14/23	179	76	102	102	8/4/2023	116	74	41	41
4/25/23	135	64	70	70	6/15/23	202	84	117	117	8/5/2023	132	85	46	46
4/26/23	137	65	71	71	6/16/23	183	118	64	64	8/6/2023	131	84	45	45
4/27/23	151	67	82	82	6/17/23	167	108	58	58	8/7/2023	124	80	43	43
4/28/23	153	67	84	84	6/18/23	161	103	56	56	8/8/2023	129	83	45	45
4/29/23	168	72	94	94	6/19/23	152	98	53	53	8/9/2023	126	81	44	44
4/30/23	175	72	102	102	6/20/23	162	104	57	57	8/10/2023	131	84	46	46
5/1/23	216	86	129	129	6/21/23	165	107	58	58	8/11/2023	147	95	51	51
5/2/23	258	95	162	162	6/22/23	160	103	56	56	8/12/2023	147	95	51	51
5/3/23	308	125	181	181	6/23/23	163	105	57	57	8/13/2023	137	88	48	48
5/4/23	331	145	185	185	6/24/23	147	94	52	52	8/14/2023	146	94	51	51
5/5/23	316	129	186	186	6/25/23	136	88	47	47	8/15/2023	149	128	20	20
5/6/23	354	151	202	202	6/26/23	139	90	49	49	8/16/2023	144	122	21	21
5/7/23	351	148	202	202	6/27/23	154	99	54	54	8/17/2023	139	117	21	21
5/8/23	339	139	200	200	6/28/23	152	97	53	53	8/18/2023	141	119	21	21
5/9/23	350	148	200	200	6/29/23	159	102	56	56	8/19/2023	146	124	21	21
5/10/23	341	128	211	211	6/30/23	151	97	53	53	8/20/2023	135	113	21	21
5/11/23	335	138	196	196	7/1/23	136	87	48	48	8/21/2023	120	98	21	21
5/12/23	313	121	191	191	7/2/23	126	81	44	44	8/22/2023	119	97	21	21
5/13/23	315	111	202	202	7/3/23	130	83	46	46	8/23/2023	99	77	21	21
5/14/23	340	127	212	212	7/4/23	128	82	45	45	8/24/2023	120	98	21	21

5/15/23	358	153	204	204	7/5/23	147	95	51	51	8/25/2023	117	96	21	21
5/16/23	399	189	209	207	7/6/23	149	96	52	52	8/26/2023	112	90	20	20
5/17/23	414	203	210	200	7/7/23	135	87	47	47	8/27/2023	118	97	21	21
5/18/23	417	211	205	197	7/8/23	136	87	47	47	8/28/2023	120	98	20	20
5/19/23	415	211	203	190	7/9/23	135	87	47	47	8/29/2023	113	92	20	20
5/20/23	416	212	203	188	7/10/23	122	79	42	42	8/30/2023	117	95	20	20
5/21/23	417	213	203	190	7/11/23	133	86	46	46	8/31/2023	128	107	20	20

Table C- 7: The Dalles daily average project flows

Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS	Date	Outflow KCFS	Generation Flow KCFS	Actual Spill KCFS	FOP Spill KCFS
4/1/23	97	91	0	0	5/22/23	404	206	192	162	7/12/23	133	74	53	53
4/2/23	102	96	0	0	5/23/23	396	199	191	158	7/13/23	133	74	53	53
4/3/23	120	114	0	0	5/24/23	367	197	164	147	7/14/23	153	86	61	61
4/4/23	98	92	0	0	5/25/23	343	198	140	137	7/15/23	144	81	58	58
4/5/23	91	85	0	0	5/26/23	314	183	125	126	7/16/23	131	74	52	53
4/6/23	91	85	0	0	5/27/23	278	161	111	111	7/17/23	130	72	52	52
4/7/23	98	92	0	0	5/28/23	266	155	106	107	7/18/23	136	76	54	54
4/8/23	92	86	0	0	5/29/23	266	154	106	106	7/19/23	138	77	55	55
4/9/23	102	97	0	0	5/30/23	268	156	106	107	7/20/23	134	75	53	54
4/10/23	114	63	45	46	5/31/23	252	146	101	101	7/21/23	122	68	48	49
4/11/23	121	67	48	48	6/1/23	243	140	97	97	7/22/23	118	66	47	47
4/12/23	155	87	62	62	6/2/23	214	123	85	86	7/23/23	113	62	45	45
4/13/23	158	89	63	63	6/3/23	213	122	85	85	7/24/23	115	63	46	46
4/14/23	144	81	57	58	6/4/23	206	118	82	82	7/25/23	138	77	55	55
4/15/23	136	76	54	54	6/5/23	210	120	84	84	7/26/23	133	75	53	53
4/16/23	125	69	50	50	6/6/23	211	121	84	85	7/27/23	142	79	56	57
4/17/23	133	74	53	53	6/7/23	214	123	85	86	7/28/23	135	75	54	54
4/18/23	134	75	54	54	6/8/23	209	120	83	83	7/29/23	125	69	50	50
4/19/23	127	70	51	51	6/9/23	191	109	76	76	7/30/23	120	66	48	48
4/20/23	130	72	51	52	6/10/23	166	94	66	66	7/31/23	134	75	53	54
4/21/23	129	71	51	51	6/11/23	154	87	61	61	8/1/23	121	67	48	48
4/22/23	132	74	53	53	6/12/23	167	95	66	67	8/2/23	115	64	46	46
4/23/23	127	71	50	51	6/13/23	161	91	65	65	8/3/23	106	58	42	42
4/24/23	127	71	51	51	6/14/23	159	90	63	64	8/4/23	107	58	43	43

4/25/23	128	71	51	51	6/15/23	191	110	76	76	8/5/23	126	70	50	50
4/26/23	126	70	51	50	6/16/23	168	95	67	67	8/6/23	120	67	48	48
4/27/23	146	82	58	58	6/17/23	152	86	60	61	8/7/23	113	62	45	45
4/28/23	144	81	57	58	6/18/23	146	82	58	58	8/8/23	119	66	47	48
4/29/23	164	93	66	66	6/19/23	141	79	56	56	8/9/23	114	62	45	45
4/30/23	170	97	68	68	6/20/23	145	82	58	58	8/10/23	123	68	50	49
5/1/23	205	118	81	82	6/21/23	156	88	62	62	8/11/23	133	74	53	53
5/2/23	245	142	97	98	6/22/23	149	84	59	59	8/12/23	133	75	53	53
5/3/23	291	170	115	116	6/23/23	149	84	59	60	8/13/23	129	72	52	52
5/4/23	321	188	127	128	6/24/23	136	76	54	54	8/14/23	130	72	52	52
5/5/23	307	179	122	123	6/25/23	126	70	50	50	8/15/23	142	93	43	43
5/6/23	338	197	135	135	6/26/23	134	75	53	53	8/16/23	139	92	41	42
5/7/23	343	201	137	137	6/27/23	143	81	57	57	8/17/23	136	89	41	41
5/8/23	325	189	130	130	6/28/23	140	79	56	56	8/18/23	135	89	40	41
5/9/23	337	197	134	135	6/29/23	149	84	59	60	8/19/23	139	91	42	42
5/10/23	325	190	129	130	6/30/23	142	79	57	57	8/20/23	131	86	39	39
5/11/23	329	192	131	132	7/1/23	123	68	49	49	8/21/23	115	75	35	35
5/12/23	306	178	122	122	7/2/23	118	65	47	47	8/22/23	116	75	34	35
5/13/23	302	177	120	121	7/3/23	121	67	48	48	8/23/23	96	61	28	29
5/14/23	321	187	128	129	7/4/23	119	66	47	48	8/24/23	116	75	35	35
5/15/23	343	201	136	137	7/5/23	136	76	54	55	8/25/23	110	71	33	33
5/16/23	385	191	189	154	7/6/23	137	76	55	55	8/26/23	112	72	34	34
5/17/23	403	179	218	161	7/7/23	127	70	51	51	8/27/23	111	72	33	33
5/18/23	403	225	173	161	7/8/23	123	68	49	49	8/28/23	115	75	35	35
5/19/23	398	229	163	159	7/9/23	129	72	51	52	8/29/23	105	68	32	32
5/20/23	400	224	170	160	7/10/23	106	57	43	42	8/30/23	114	74	34	34
5/21/23	403	227	171	161	7/11/23	124	69	50	50	8/31/23	126	82	38	38

Table C- 8: Bonneville daily average project flows