The Dalles Dam Fishway Status Report

10/31/2015

Inspection Period: 10/25/2015 - 10/31/2015

THE DALLES DAM

US Army Corps of Engineers
Portland District

The Dalles Project-Fisheries
P.O. Box 564
The Dalles, OR 97058-9998
Phone: 541-506-3800

Fishways are inspected twice daily plus one SCADA inspection

The Dalles Dam	Inspections Out of Criteria	Criteria Limit	Total Number of Inspections: 21 / Comments	Temperature: 61.2 F / Secchi: 5.0 feet
NORTH FISHWAY				
Exit differential	0	≤ 0.5'		
Count station differential	0	≤ 0.3'		
Weir crest depth	0	1.0' ± 0.1'		
Entrance differential	0	1.0' - 2.0'	Average 1.4	
Entrance weir N1	0	depth (≥ 8')	Average 8.6	
Entrance weir N2	0	Closed	Bulkhead installed.	
PUD Intake differential	0	≤ 0.5'		
EAST FISHWAY				
Exit differential	0	≤ 0.5'		
Removable weirs 154-157	0	Per forebay	Auto adjusts 1' increments.	
Weir 158-159 differential	0	1.0' ± 0.1'	out criteria at 0.8'. Electricians corrected.	
Count station differential	0	≤ 0.3'	Picket leads raked as needed.	
Weir crest depth	0	1.0' ± 0.1'		
Junction pool weir JP6	0	depth (≥ 7')	Average 9.1 Weir pulled to achieve criteria with low tailwater	
East entrance differential	0	1.0' - 2.0'	Average 1.6	
Entrance weir E1	0	No criteria	Average No criteria; manually adjusted as needed.	
Entrance weir E2	0	depth (≥ 8')	Average 11.3 low tailwater 7.9 and 7.8 corrected.	
Entrance weir E3	0	depth (≥ 8')	Average 10.2	
Collection channel velocity	0	1.5 - 4 fps	Average 2.9	
Transportation channel velocity	0	1.5 - 4 fps	Average 2.6	
North channel velocity	0	1.5 - 4 fps	Average 3.1	
South channel velocity	1	1.5 - 4 fps	Average 4.5	
West entrance differential	0	1.0' - 2.0'	Average 1.5	
Entrance weir W1	0	depth (≥ 8')	Average 9.1	
Entrance weir W2	0	depth (≥ 8')	Average 9.1	
Entrance weir W3	0	No criteria	Average No criteria; manually adjusted as needed.	
South entrance differential	0	1.0' - 2.0'	Average 1.5	
Entrance weir S1	0	depth (≥ 8')	Average 8.3	
Entrance weir S2	0	depth (≥ 8')	Average 8.3	
JUVENILE PASSAGE				
Sluicegate operation	0	Units 1, 8, 18	Sluicegates 1-1,2,3, 8-1,2, and 18-2 open.	
Turbine trashrack drawdown	0	<1.5', wkly	Range: 0.1 - 0.4'	
Spill volume	NA	40%+-1%	Average Spill closed on 9/1/15	
Spill Pattern	NA	per FPP		
Turbine Unit Priority	0	per FPP		
Turbine 1% Efficiency	0	per FPP		

OTHER ISSUES:

Birds/Sea lions:
Bird observation data collected once daily. Refer to Avian Zone map. No sea lion sightings.
USDA hazing contract proposed changes for 2016; boat hazing 5 day / week through May and part of June, depending on available funding.

Operations:
Turbine trashrack drawdown completed 10/27/15. Forebay/gatewell differential in criteria.
Fishway calibration completed 10/29/15, north entrance and tailwater off but not out of criteria
Fish Counts end for the season on 10/31.
Investigating operational changes needed for potential large oil spill in Columbia. Fishway protection measures to be evaluated. Plan to be presented to FPOM when complete. Permanent boom purchased for east fishway exit (FPOM approved). Working through installation options.
Eight salmonids observed in fish lock. Efforts continue for removal, however safe access is not achievable. Future preventative measures being discussed. Updated MFR provided to FPOM. Refer to pic tab for fishlock schematic.

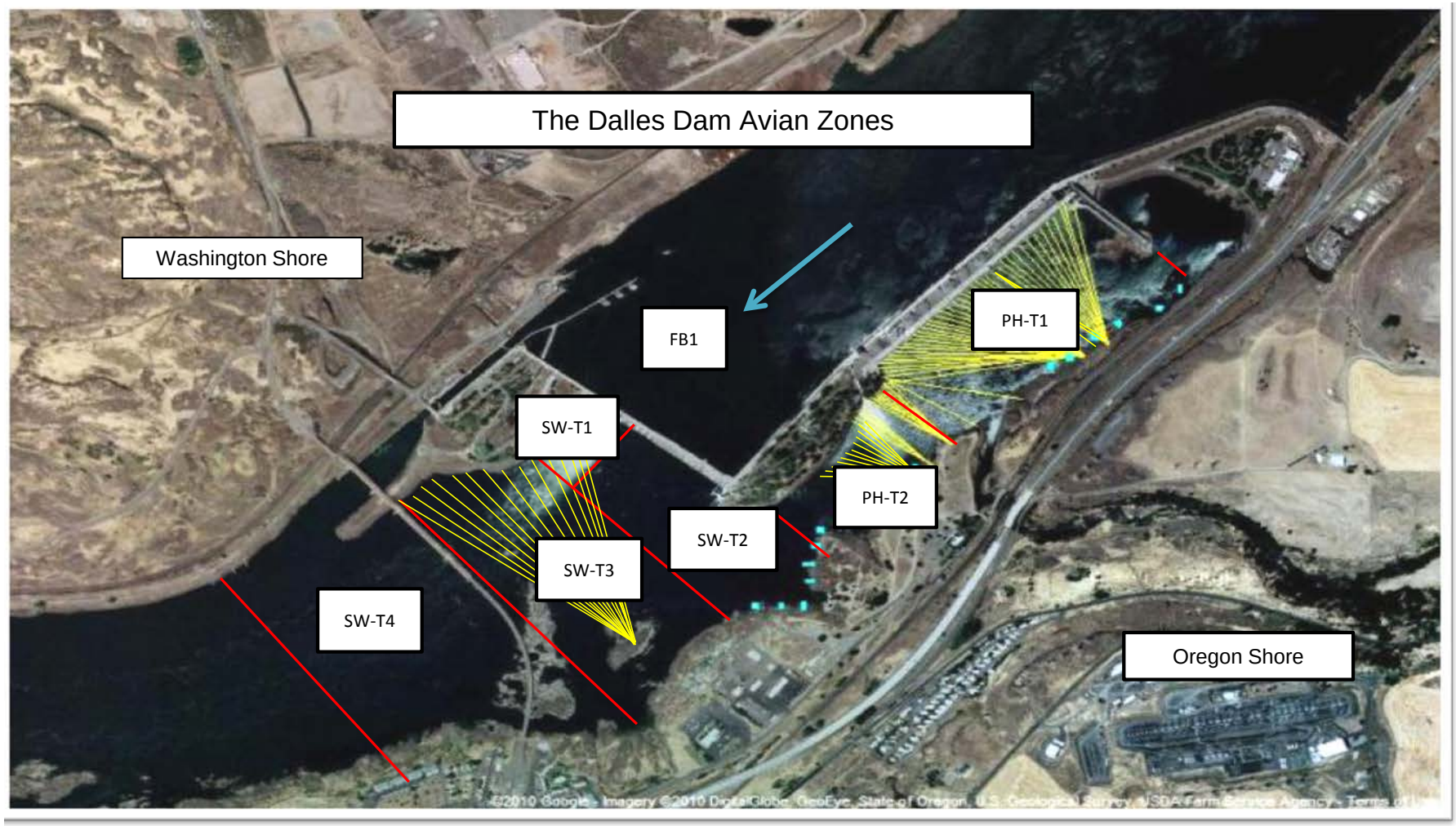
Current Outages:
Transformer T8 (MU15 & MU16) de-rated to 85MW ops through 9/14/2017

Maintenance:
On 10/27, the ice and trash sluiceway was closed for 30 mins. to reinstall the tarp covering, coordinated through FPOM.
Two failed collection channel dewatering pumps remaining on deck for repair. Awaiting funding for parts purchase.
Entrance/Exit weir sensor and PLC replacement being investigated. On budget list.
East exit weir electrical panel FCQ7 parts ordered. Installation planned for next 2 outage seasons, however funding not presently available.
Updating inventory assessment on fish unit spare parts.
Purchasing new dewatering pump motor for north fishway entrance.
Investigating cost and feasibility for 154 -157 weir replacement through project labor.
Preparing workload for upcoming winter maintenance period; entrance weir wheel replace, entrance weir guide repair, exit/entrance sensor upgrades.
Long Term repair plans ; removal/permanent closure of collection channel diffusers, repair north failed diffusers,
Fish related /non-fish funded items ; spillway evaluation, spillway crane rehab, spillgate 9 trunnion pin replace, sluiceway chaingate rehab (approx 50% complete), fish unit breaker replace (in planning), and transformer replace (in planning).
All spillway items on Critical Infrastructure list and Unfunded Requirement list. Spill gate 9 repair on hold awaiting funding.

Studies:
North fishladder rehab study for rock wall 90% DDR review. Construction 2017/18. FPOM review ongoing.
Fish count video at north count station recording / testing underway. Result review through FPOM.
East fishladder emergency backup construction this winter delayed. Winter fishway dewater schedule now adjsuted to fit in water work period.
Crane rail replacement on tailrace and intake 2016-2017. Site visit Nov 3. First week august rail removal near east exit being coordinated through FPOM.
Transformer replacement planning underway. Plans to eliminate fish unit TA transformers. Work to start 2017.
North spill attraction flow proposal continues to be reviewed through FPOM. Threshold for daily passage amount to use spill remains unresolved.

Research/Contractors:
Normandeau fish counters at east and north count stations 16 hr/day through 10/31.
Northern pikeminnow dam angling caught 4,566 NPM≥ 230mm for the year at The Dalles Dam.

Approved by: Ron Twiner
Operation Project Manager The Dalles Dam



Avian lines in yellow, zones in red, river flow in blue.

2015 Piscivorous Bird Counts

F=foraging, NF=non-foraging

Date	Observer	Time (24 hr)	Zone	Gull		Cormorant		Caspian tern		Grebe		Pelican		Other		Total birds in	Notes
				F	NF	F	NF	F	NF	F	NF	F	NF	F	NF		
10/25/15	EHK	13:28	FB	0	0	0	10	0	0	0	0	0	0	0	0	10	
		13:48	PH1	0	0	0	24	0	0	0	0	0	0	0	0	24	
		12:58	PH2	0	0	0	0	0	0	0	0	0	0	0	0	0	
		13:41	SW1	0	0	0	1	0	0	0	0	0	0	0	0	1	
		13:03	SW2	0	0	0	3	0	0	0	0	0	0	0	0	3	
		13:04	SW3	0	0	0	38	0	0	0	0	0	0	0	0	38	
		13:05	SW4	0	63	0	8	0	0	0	0	0	0	0	0	71	
10/26/15	JWR	9:52	FB	0	1	2	23	0	0	0	40	0	0	0	0	66	
		8:48	PH1	0	0	0	5	0	0	0	0	0	0	0	7	12	COME
		8:52	PH2	0	0	0	0	0	0	0	0	0	0	0	0	0	
		9:53	SW1	0	0	0	0	0	0	0	0	0	0	0	0	0	
		8:54	SW2	0	0	0	0	0	0	0	0	0	0	0	0	0	
		8:55	SW3	0	0	0	32	0	0	0	0	0	0	0	0	32	
		8:56	SW4	0	52	0	5	0	0	0	0	0	0	0	0	57	
10/27/15	EHK	15:26	FB	0	0	0	6	0	0	0	0	0	0	0	0	6	
		13:58	PH1	0	0	0	9	0	0	0	0	0	0	0	11	20	merganser
		14:10	PH2	0	0	0	0	0	0	0	0	0	0	0	0	0	
		15:38	SW1	0	0	0	0	0	0	0	0	0	0	0	0	0	
		14:14	SW2	0	0	0	0	0	0	0	0	0	0	0	0	0	
		14:17	SW3	0	0	0	52	0	0	0	0	0	0	0	0	52	
		14:18	SW4	0	0	0	0	0	0	0	0	0	0	0	0	0	
10/28/15	JWR	10:02	FB	0	0	0	22	0	0	0	0	0	0	0	1	23	Loon
		9:04	PH1	0	0	0	16	0	0	0	0	0	0	0	12	28	COME
		9:12	PH2	0	0	0	0	0	0	0	0	0	0	0	0	0	
		10:06	SW1	0	0	0	0	0	0	0	0	0	0	0	0	0	
		9:21	SW2	0	0	1	0	0	0	0	0	0	0	0	0	1	
		9:22	SW3	0	0	0	37	0	0	0	0	0	0	0	0	37	
		9:23	SW4	0	75	0	0	0	0	0	0	0	0	0	0	75	
10/29/15	JWR	12:38	FB	0	54	0	18	0	0	0	0	0	0	0	0	72	
		12:08	PH1	0	1	0	32	0	0	0	0	0	0	0	0	33	
		12:14	PH2	0	0	0	0	0	0	0	0	0	0	0	0	0	
		12:41	SW1	0	0	0	0	0	0	0	0	0	0	0	0	0	
		12:16	SW2	0	0	0	0	0	0	0	0	0	0	0	0	0	
		12:17	SW3	0	0	0	20	0	0	0	0	0	0	0	0	20	
		12:18	SW4	0	77	0	0	0	0	0	0	0	0	0	0	77	
10/30/15	JWR	8:22	FB	0	5	2	95	0	0	0	0	0	0	1	0	103	Loon
		7:54	PH1	0	3	1	0	0	0	0	0	0	0	0	0	4	
		8:00	PH2	0	0	0	0	0	0	0	0	0	0	0	0	0	
		8:21	SW1	0	0	0	0	0	0	0	0	0	0	0	1	1	GBHE
		8:03	SW2	0	0	0	0	0	0	0	0	0	0	0	0	0	
		8:04	SW3	0	0	0	30	0	0	0	0	0	0	0	0	30	
		8:20	SW4	0	89	0	6	0	0	0	0	0	0	0	0	95	
10/31/15	EHK	14:09	FB	0	0	0	0	0	0	0	0	0	0	0	0	0	
		13:19	PH1	0	0	0	35	0	0	0	0	0	0	0	12	47	merganser
		13:33	PH2	0	0	0	0	0	0	0	0	0	0	0	0	0	
		14:24	SW1	0	0	0	0	0	0	0	0	0	0	0	0	0	
		13:34	SW2	0	0	0	0	0	0	0	0	0	0	0	0	0	
		13:35	SW3	0	0	0	52	0	0	0	0	0	0	0	0	52	
		13:38	SW4	0	54	0	3	0	0	0	0	0	0	0	0	57	

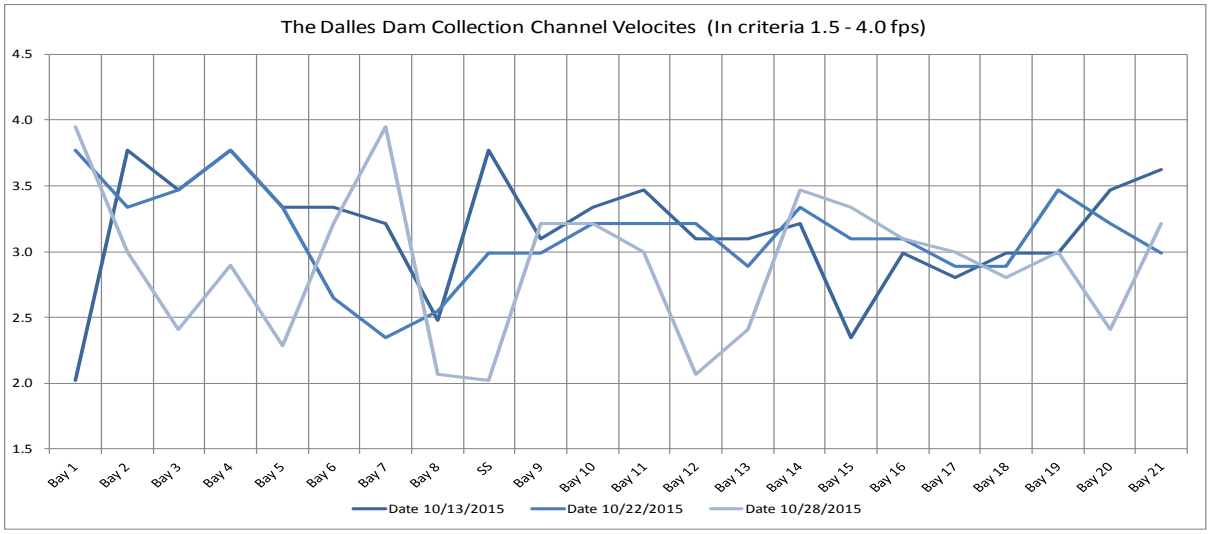
The Dalles East

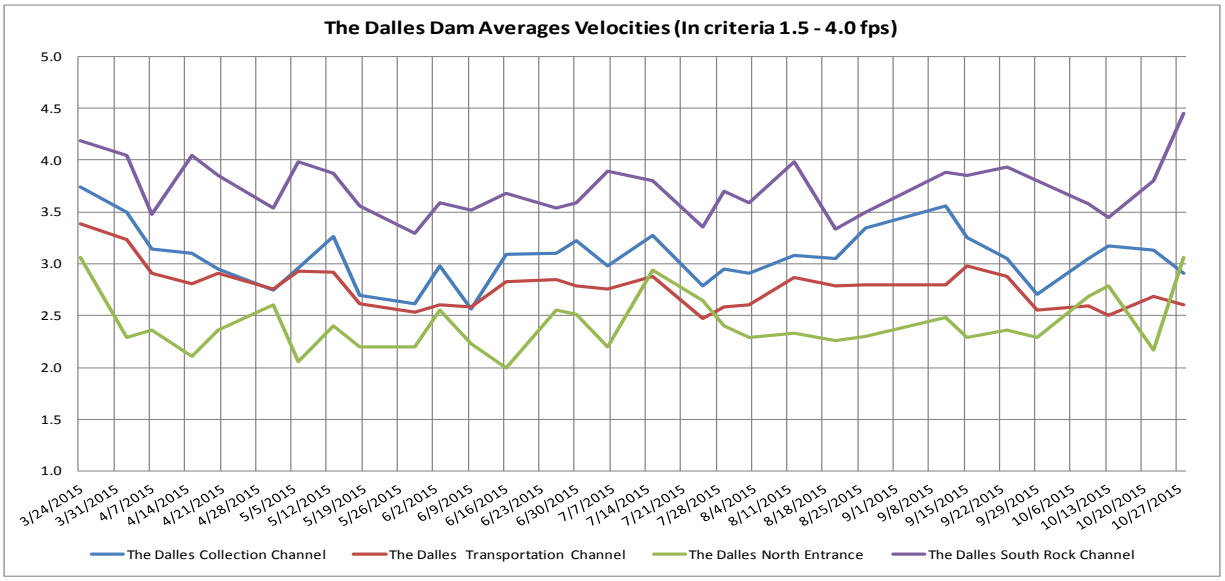
Date	All Chinook	Adult Chinook	Jack Chinook	All Steelhead	Clipped Steelhead	Unclipped Steelhead	All Coho	Adult Coho	Jack Coho	Sockeye	Chum	Pink	Lamprey
10/25	1921	1639	282	256	150	106	32	28	4	0	0	0	0
10/26	1434	1266	168	222	125	97	27	23	4	0	0	0	0
10/27	1020	919	101	257	149	108	56	54	2	0	0	0	0
10/28	1172	1022	150	410	236	174	57	52	5	0	0	0	0
10/29	940	860	80	124	78	46	24	24	0	0	0	0	0
10/30	447	385	62	210	106	104	16	16	0	0	0	0	0
10/31	612	528	84	287	144	143	34	30	4	0	0	0	0
total	**7546**	**6619**	**927**	**1766**	**988**	**778**	**246**	**227**	**19**	**0**	**0**	**0**	**0**
% east passage	**93.23%**	**93.40%**	**92.06%**	**86.19%**	**88.29%**	**83.66%**	**91.45%**	**91.90%**	**86.36%**	**NA**	**NA**	**NA**	**NA**

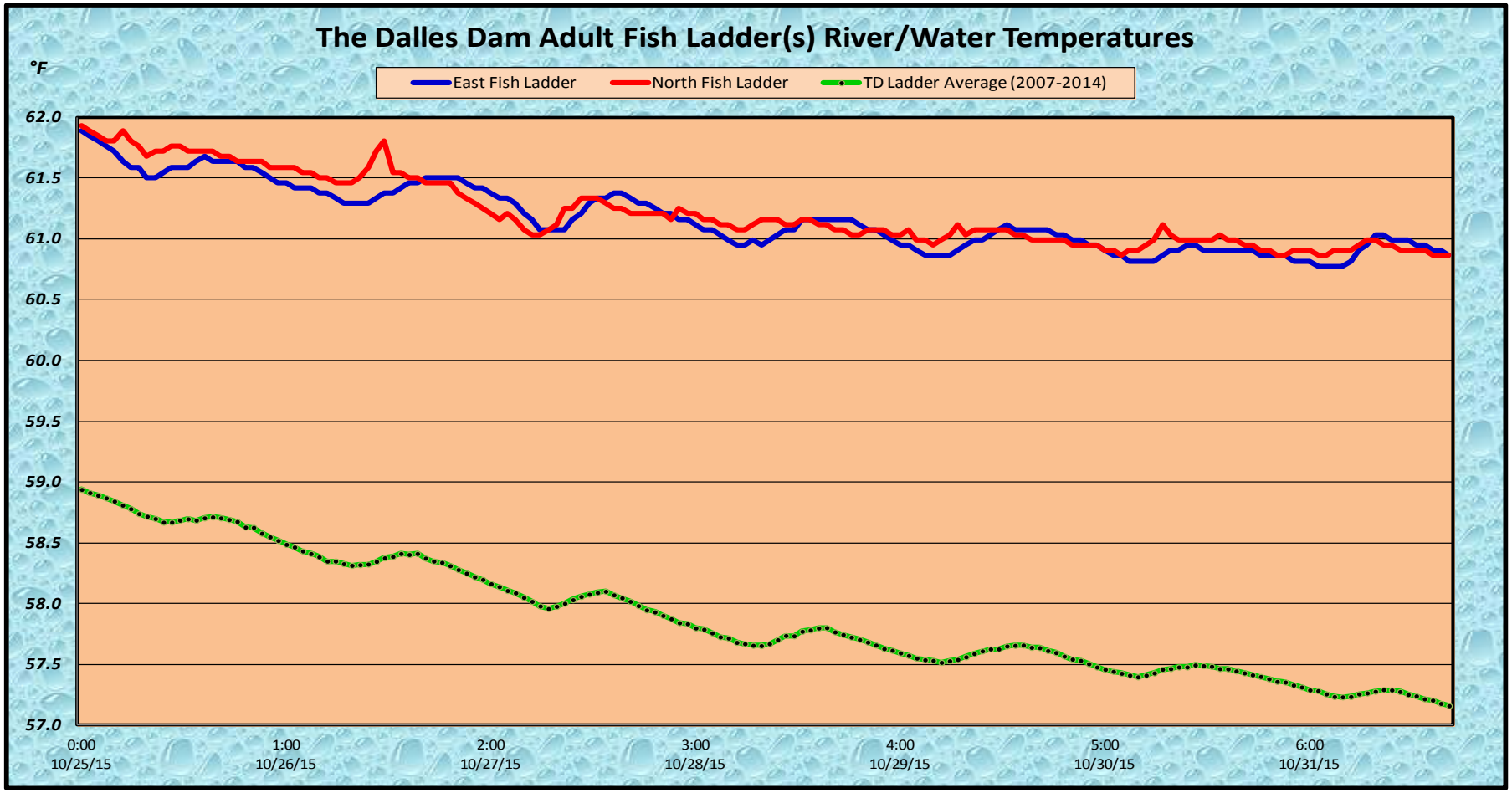
The Dalles North

Date	All Chinook	Adult Chinook	Jack Chinook	All Steelhead	Clipped Steelhead	Unclipped Steelhead	All Coho	Adult Coho	Jack Coho	Sockeye	Chum	Pink	Lamprey
10/25	90	76	14	50	26	24	1	1	0	0	0	0	0
10/26	118	86	32	26	14	12	0	0	0	0	0	0	0
10/27	62	60	2	42	18	24	4	4	0	0	0	0	0
10/28	40	36	4	37	19	18	6	6	0	0	0	0	0
10/29	82	72	10	34	17	17	-2	-2	0	0	0	0	0
10/30	84	80	4	42	14	28	5	4	1	0	0	0	0
10/31	72	58	14	52	23	29	9	7	2	0	0	0	0
total:	**548**	**468**	**80**	**283**	**131**	**152**	**23**	**20**	**3**	**0**	**0**	**0**	**0**

Fish counts end for the season on 10/31


The Dalles Dam Collection Channel Velocites (In criteria 1.5 - 4.0 fps)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
Bay 1
Bay 2
Bay 3
Bay 4
Bay 5
Bay 6
Bay 7
Bay 8
SS
Bay 9
Bay 10
Bay 11
Bay 12
Bay 13
Bay 14
Bay 15
Bay 16
Bay 17
Bay 18
Bay 19
Bay 20
Bay 21
Date 10/13/2015
Date 10/22/2015
Date 10/28/2015


The Dalles Dam Averages Velocities (In criteria 1.5 - 4.0 fps)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
3/24/2015
3/31/2015
4/7/2015
4/14/2015
4/21/2015
4/28/2015
5/5/2015
5/12/2015
5/19/2015
5/26/2015
6/2/2015
6/9/2015
6/16/2015
6/23/2015
6/30/2015
7/7/2015
7/14/2015
7/21/2015
7/28/2015
8/4/2015
8/11/2015
8/18/2015
8/25/2015
9/1/2015
9/8/2015
9/15/2015
9/22/2015
9/29/2015
10/6/2015
10/13/2015
10/20/2015
10/27/2015
The Dalles Collection Channel
The Dalles Transportation Channel
The Dalles North Entrance
The Dalles South Rock Channel


The Dalles Dam Adult Fish Ladder(s) River/Water Temperatures
°F
East Fish Ladder
North Fish Ladder
TD Ladder Average (2007-2014)
62.0
61.5
61.0
60.5
60.0
59.5
59.0
58.5
58.0
57.5
57.0
0:00
10/25/15
1:00
10/26/15
2:00
10/27/15
3:00
10/28/15
4:00
10/29/15
5:00
10/30/15
6:00
10/31/15

USGS: tp://www.nwd-wc.usace.army.mil/tmt/documents/ops/temp/201510.lcol.ht

Secchi:		Temperatures
5.0	Sun	61.7
5.0	Mon	61.4
5.0	Tue	61.2
5.0	Wed	61.1
5.0	Thurs	61.0
5.0	Fri	60.9
5.0	Sat	60.9
5.0	AVG	61.2

The Dalles Dam Daily Readings and Averages for

Temperatures, Secchi, Entrances, and Spill

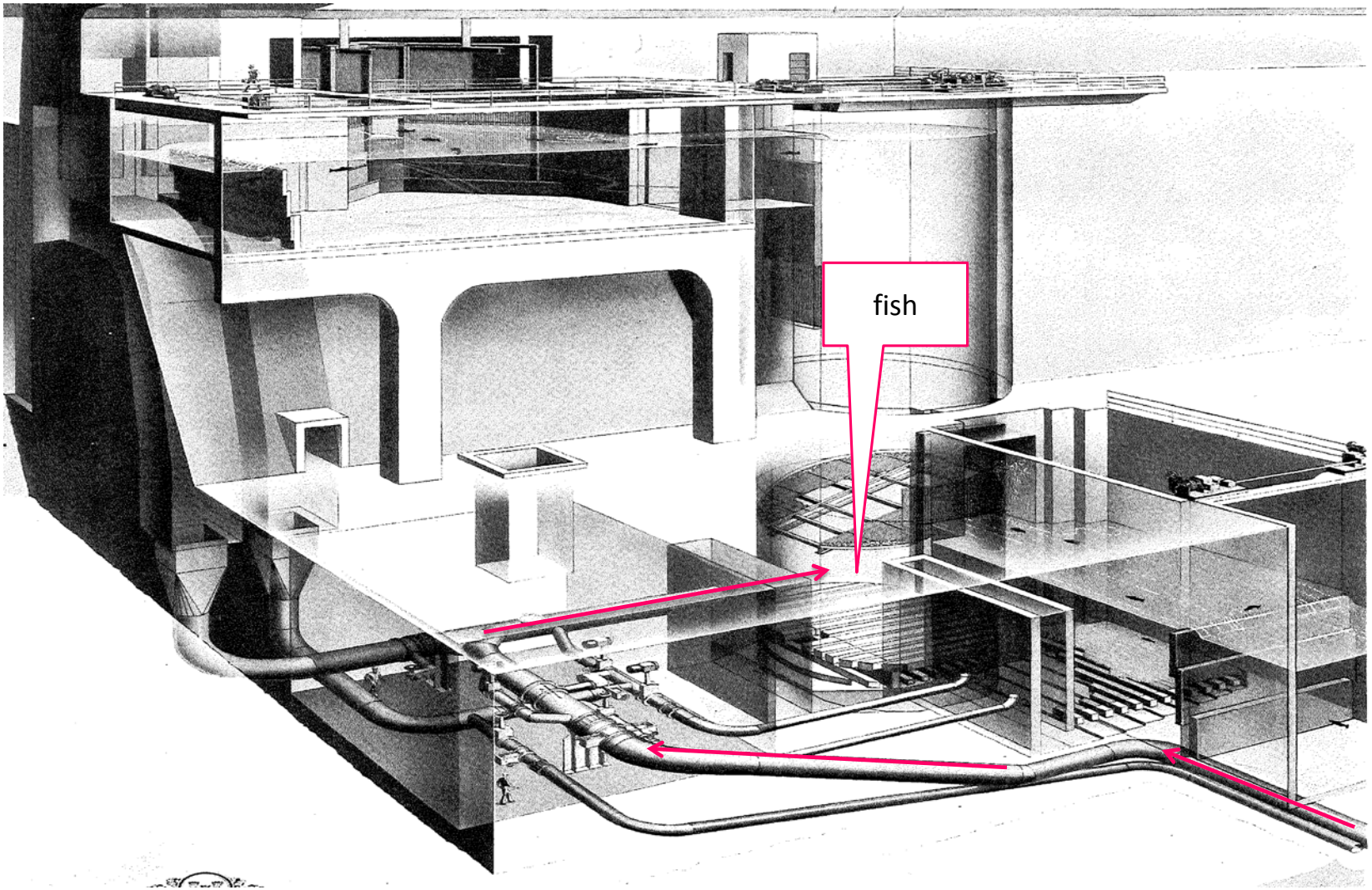
= Out of criteria

	North Ladder		***East Ladder***											
	North Entrance		East Entrance					West Entrance				South Entrance			
Date:	Differential	N1 Depth	Differential	E1 Depth	E2 Depth	E3 Depth	JP 6	Differential	W1 Depth	W2 Depth	W3 Depth	Differential	S1 Depth	S2 Depth	
10/25			1.7	7.1	10.9	9.8		1.5	9.1	9.1		1.5	8.3	8.4	
	1.2	8.6	1.6	7.7	10.9	9.8	8.4	1.5	9.3	9.3		1.5	8.3	8.3	
	1.3	9.6	1.6	8.0	11.0	10.0	8.5	1.4	9.3	9.3		1.4	8.3	8.3	
10/26			1.6	7.9	11.0	9.9		1.6	9.0	9.0		1.4	8.3	8.3	
	1.3	8.7	1.6	7.9	11.4	10.3	8.9	1.6	9.1	9.1		1.5	8.3	8.3	
	1.3	8.7	1.5	7.9	11.2	10.1	8.7	1.7	9.1	9.1		1.4	8.4	8.4	
10/27			1.6	7.8	11.2	10.1		1.5	9.1	9.1		1.5	8.3	8.3	
	1.5	8.4	1.5	7.8	11.5	10.4	9.0	1.5	9.2	9.2		1.5	8.3	8.3	
	1.5	8.4	1.7	8.5	11.3	10.2	12.8	1.6	9.2	9.2		1.5	8.3	8.3	
10/28			1.4	8.7	11.6	10.5		1.5	9.2	9.2		1.4	8.3	8.3	
	1.5	8.5	1.5	5.5	11.8	10.7	9.3	1.5	9.2	9.2		1.6	8.2	8.2	
	1.4	8.5	1.6	5.5	11.4	10.3	8.9	1.6	9.0	9.0		1.5	8.3	8.3	
10/29			2.0	5.4	10.8	9.7		1.6	9.0	9.0		1.5	8.3	8.3	
	1.4	8.4	1.5	9.1	11.3	10.2	8.8	1.5	9.0	9.0		1.4	8.3	8.3	
	1.4	8.4	1.7	9.1	10.4	9.3	7.9	1.4	9.2	9.2		1.4	8.3	8.3	
10/30			1.6	9.0	10.9	9.8		1.5	9.2	9.2		1.5	8.3	8.3	
	1.3	8.5	1.6	9.0	10.9	9.8	8.4	1.4	9.1	9.1		1.4	8.4	8.4	
	1.5	8.5	1.6	9.1	11.3	10.2	8.8	1.5	9.2	9.2		1.3	8.5	8.5	
10/31			1.3	9.0	11.9	10.8		1.5	9.1	9.1		1.5	8.2	8.3	
	1.4	8.5	1.3	9.0	12.0	10.9	9.5	1.5	9.2	9.2		1.4	8.4	8.3	
	1.5	8.5	1.2	9.0	12.4	11.3	9.9	1.5	9.2	9.2		1.4	8.3	8.4	
AVG:	1.4	8.6	1.6	8.0	11.3	10.2	9.1	1.5	9.1	9.1	closed	1.5	8.3	8.3	

S P I L L O N S E A L

Fishways are inspected twice daily plus one SCADA inspection.

Fishlock Schematic



Schematic of Fishlock. Fish observed in cylindrical portion of lock. Likely entry from tailrace through pipe (lower right of pic). Bulkheads installed in intake (upper left of pic) to stop leakage flow.