The Dalles Dam Fishway Status Report

11/8/2015

Inspection Period: 11/01/2015 - 11/07/2015

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: 19 / Comments	Temperature: 58.8 F / Secchi: 4.1 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	2	Per forebay	Auto adjusts 1' increments. Weir 156 at forebay 158.1'.	
Weir 158-159 differential	1	1.0' ± 0.1'	Out criteria at 0.7'.	
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 8.7	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 11.2	low tailwater 7.9 and 7.8 corrected.
Entrance weir E3	0	depth (≥ 8')	Average 10.1	
Collection channel velocity	0	1.5 - 4 fps	Average 3.0	
Transportation channel velocity	0	1.5 - 4 fps	Average 2.7	
North channel velocity	0	1.5 - 4 fps	Average 2.9	
South channel velocity	0	1.5 - 4 fps	Average 3.7	
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	2	Units 1, 8, 18	Sluicegates 1-1,2,3, 8-1,2, and 18-2 open.	No MU 8 on 11/7
Turbine trashrack drawdown	0	<1.5', wkly	Range: 0.1 - 0.6'	
Spill volume	NA	40%+-1%	Average	Spill closed on 9/1/15
Spill Pattern	NA	per FPP		
Turbine Unit Priority	1	per FPP	11/4/15 - Line 1 tripped causing the temporary loss of MU1 and the fishunits	
Turbine 1% Efficiency	0	per FPP		

OTHER ISSUES:

Birds/Sea lions:
Bird observation data collected once daily. Refer to Avian Zone map.
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 11/04/15. Forebay/gatewell differential in criteria.
Investigating operational changes needed for potential large oil spill in Columbia. Fishway protection measures to be evaluated. Plan to be presented to FPOM. Permanent boom purchased for east fishway exit, working through installation options.
SCADA computer temporarily disconnected for office flooring install.

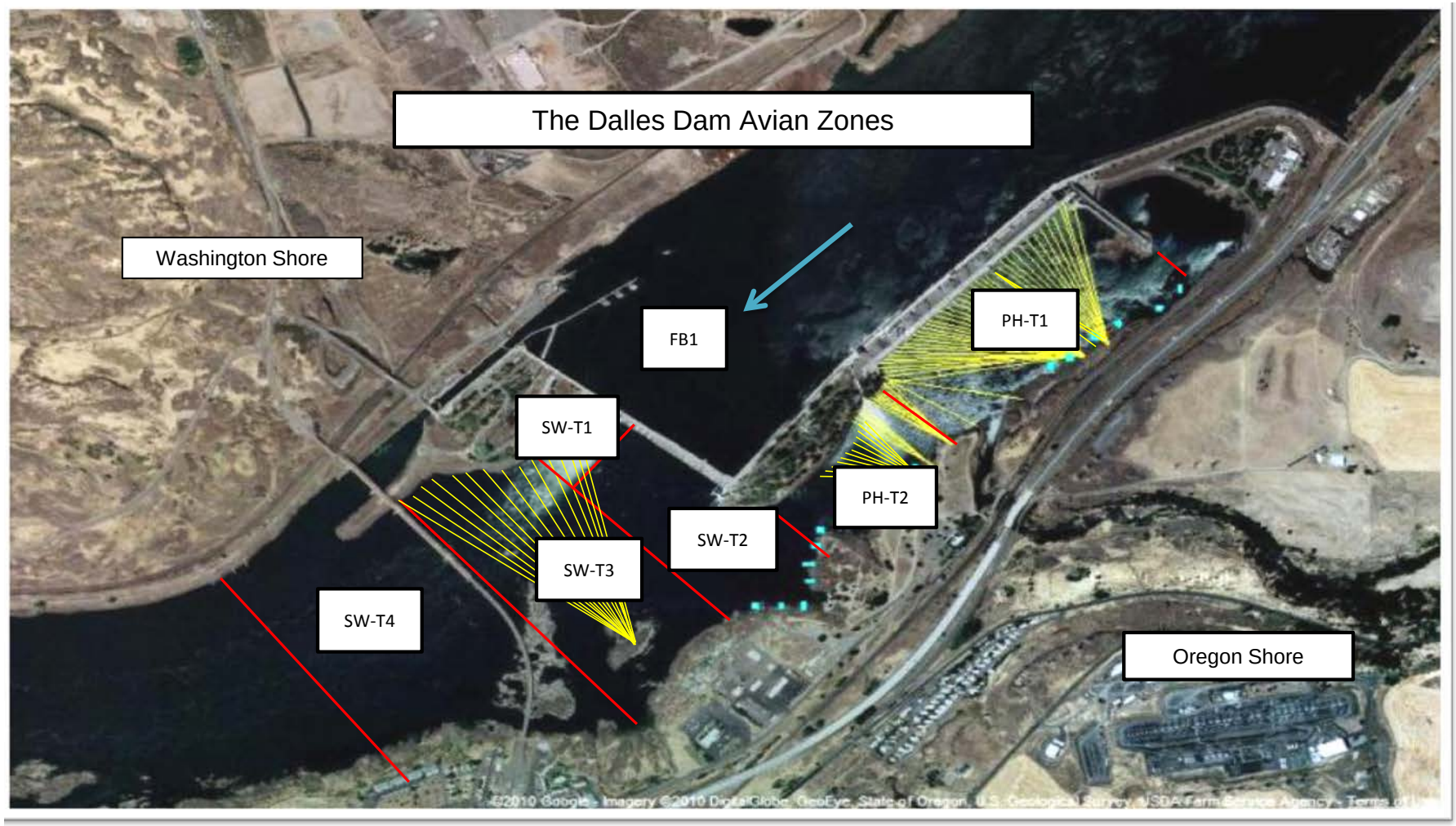
Current Outages:
Transformer T8 (MU15 & MU16) de-rated to 85MW through 9/14/2017
T3 out of service 0630 to 1700 on 11/6/2015 to repair lighting at the transformer vault

Maintenance:
Biweekly oil leak inspection monitoring on all fishway equipment continues. Maintenance notified on any excessive leakage.
North fishway winter maintenance dewatering Dec 2, '15. East fishway dewatering Jan 5, '16
Project lighting upgrades in progress. Working with fisheries for acceptable lighting near fishways.
Two failed collection channel dewatering pumps remaining on deck for repair. Parts on hand. Repair/installtion planning underway, pending funding.
Entrance/Exit weir sensor and PLC replacement being investigated. On budget list.
East exit weir electrical panel FCQ7 parts on hand. Installation planned for next 2 outage seasons, however funding not presently available.
Updating inventory on all fishway component spare parts.
New dewatering pump motor for north fishway entrance expected delivery this month. Install planned for dewater season 2016/2017.
East fishladder expansion joint leakage increasing with decreased temperatures. Repair deferred to next season due to funding constraints. See Pic tab.
Investigating cost and feasibility for 154 -157 weir replacement through project labor. No work this season due to funding constraints.
Workload for upcoming winter maintenance period; adjust 158 weir, 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 season done 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

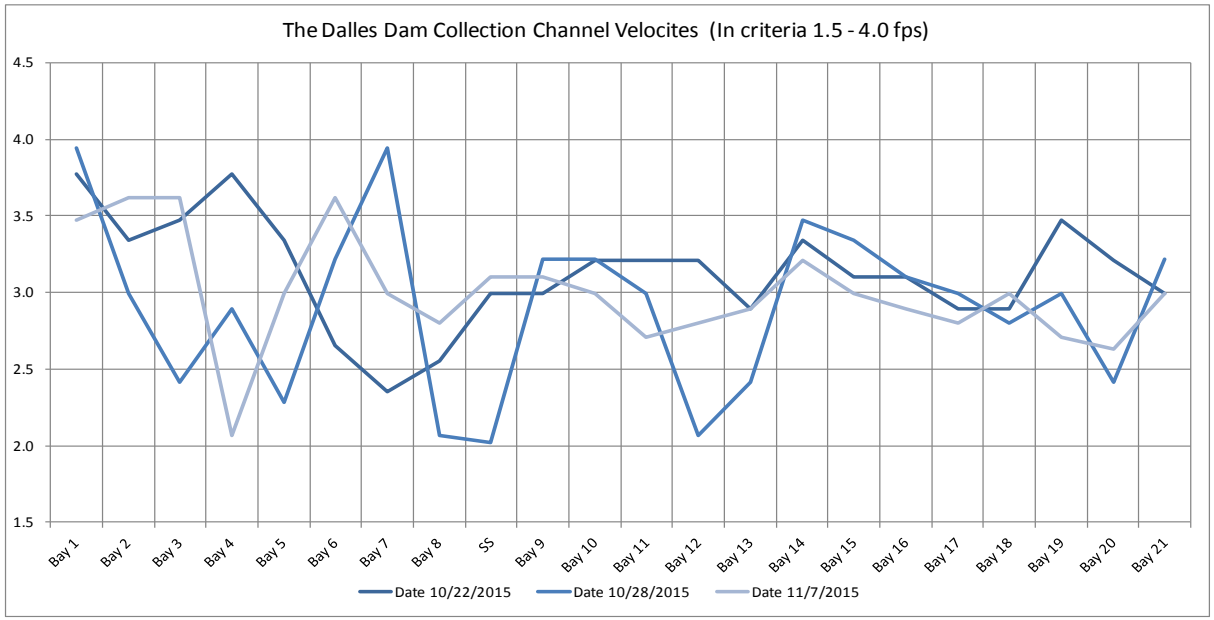


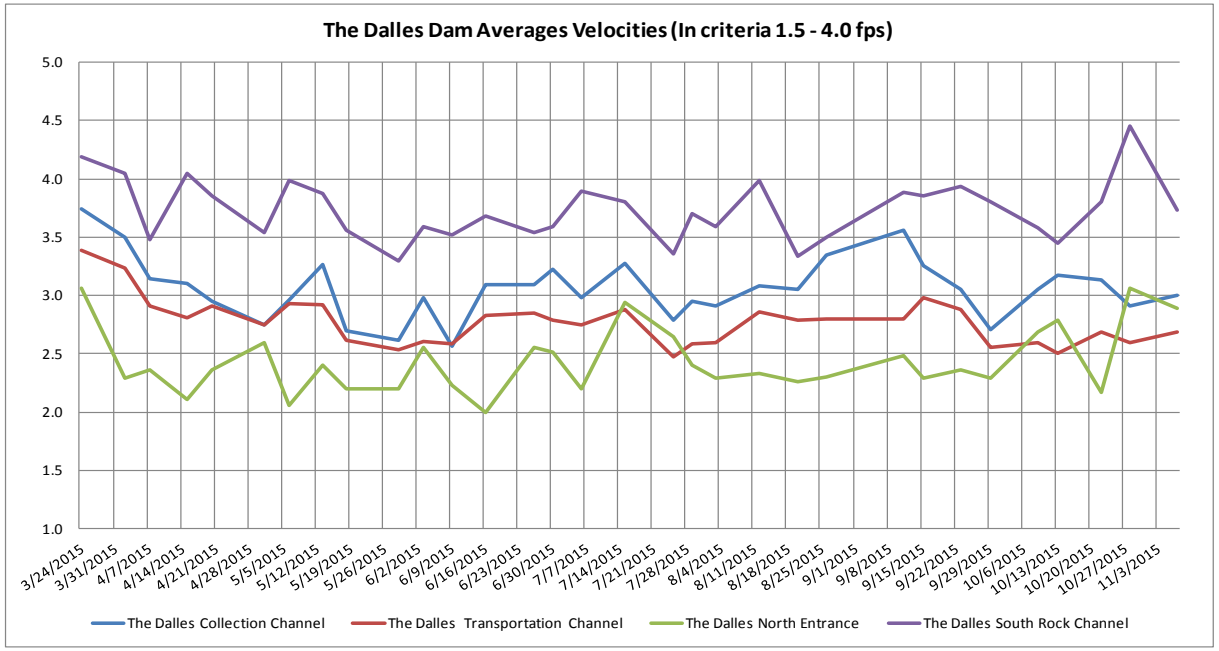
Avian lines in yellow, zones in red, river flow in blue.

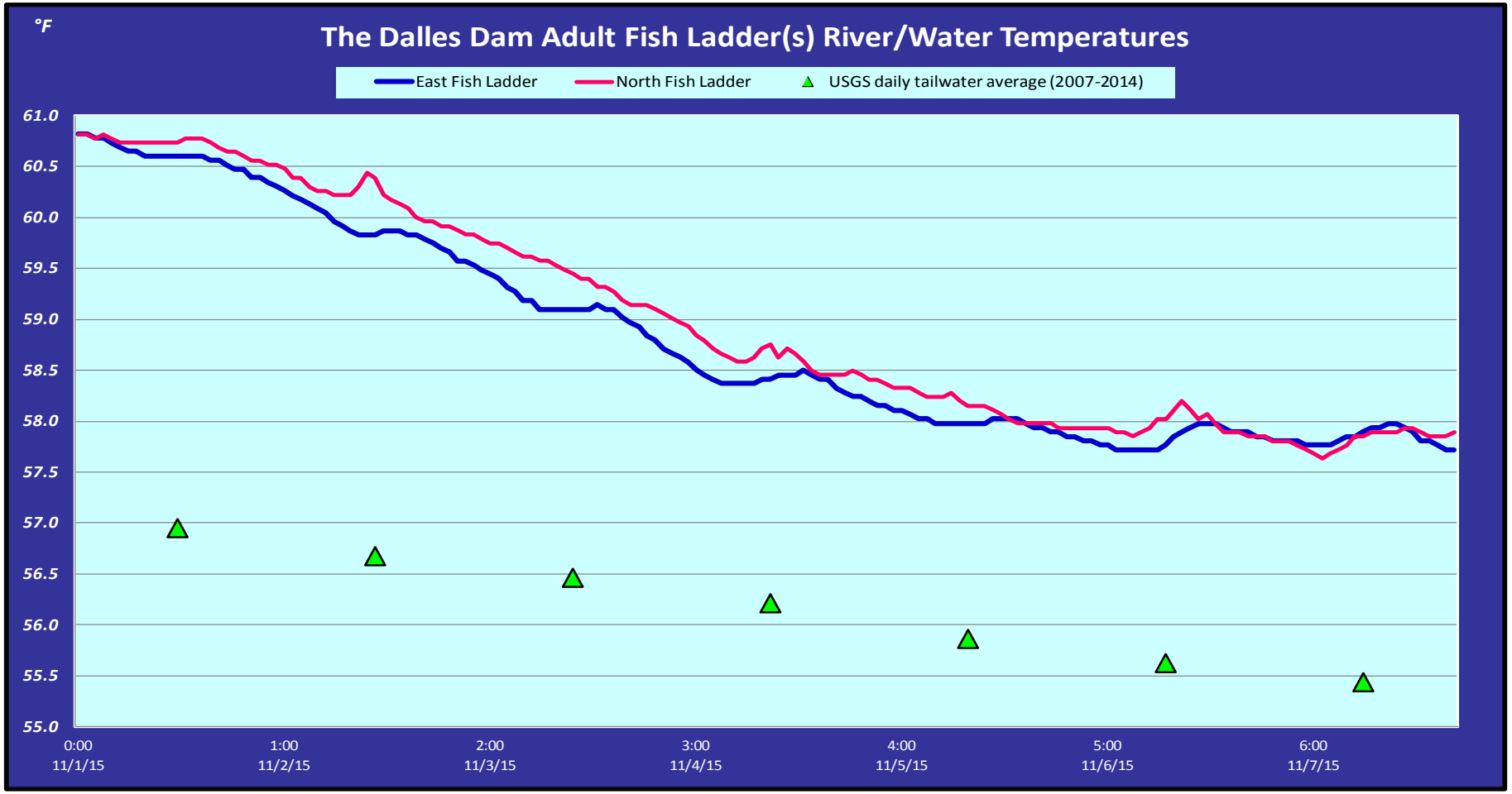
2015 Piscivorous Bird Counts

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		
11/1/15	EHK	9:37	FB	0	19	0	10	0	0	0	0	0	0	0	0	29	
		9:08	PH1	0	0	0	10	0	0	0	0	0	0	0	8	18	COME
		9:15	PH2	3	0	0	0	0	0	0	0	0	0	0	0	3	
		9:46	SW1	0	0	0	0	0	0	0	0	0	0	0	0	0	
		9:18	SW2	0	0	0	0	0	0	0	0	0	0	0	0	0	
		9:20	SW3	0	0	0	29	0	0	0	0	0	0	0	0	29	
		9:23	SW4	0	10	0	5	0	0	0	0	0	0	0	0	15	
11/2/15	EHK	14:14	FB	0	7	0	0	0	0	0	0	0	0	0	0	7	
		13:17	PH1	0	0	0	24	0	0	0	0	0	0	1	0	25	COME
		13:26	PH2	36	0	10	0	0	0	0	0	0	0	0	0	46	
		14:35	SW1	0	0	0	0	0	0	0	0	0	0	0	0	0	
		13:33	SW2	27	8	0	0	0	0	0	0	0	0	0	0	35	
		14:45	SW3	5	13	0	51	0	0	0	0	0	0	0	0	69	
		14:48	SW4	0	25	0	6	0	0	0	0	0	0	0	0	31	
11/3/15	JWR	10:18	FB	0	4	0	0	0	0	0	0	0	0	0	0	4	
		9:30	PH1	0	0	28	0	0	0	0	0	0	0	0	22	50	COME
		9:42	PH2	76	0	0	0	0	0	0	0	0	0	0	0	76	
		10:24	SW1	0	0	1	0	0	0	0	0	0	0	0	0	1	
		9:42	SW2	13	2	4	20	0	0	0	0	0	0	0	0	39	
		9:43	SW3	0	0	2	0	0	0	0	0	0	0	0	0	2	
		9:44	SW4	0	58	0	19	0	0	0	0	0	0	0	0	77	
11/4/15	GJF	15:00	FB	0	3	3	7	0	0	0	0	0	0	0	0	13	
		14:35	PH1	0	2	4	44	0	0	0	0	0	0	12	0	62	COME
		14:20	PH2	41	4	5	0	0	0	0	0	0	0	0	0	50	
		15:20	SW1	5	38	1	1	0	0	0	0	0	0	0	0	45	
		14:02	SW2	1	4	0	0	0	0	0	0	0	0	0	0	5	
		14:06	SW3	3	24	1	63	0	0	0	0	0	0	3	0	94	COME
		14:10	SW4	2	81	3	30	0	0	0	0	0	0	3	0	119	COME
11/5/15	GJF	10:41	FB	0	11	1	0	0	0	0	0	0	0	0	0	12	
		9:50	PH1	0	0	0	32	0	0	0	0	0	0	0	11	43	COME
		10:15	PH2	0	0	3	0	0	0	0	0	0	0	0	0	3	
		10:51	SW1	0	0	1	0	0	0	0	0	0	0	0	0	1	
		10:19	SW2	0	0	0	0	0	0	0	0	0	0	3	0	3	COME
		10:20	SW3	0	6	0	54	0	0	0	0	0	0	0	1	61	GBH
		10:22	SW4	25	151	0	14	0	0	0	0	0	0	0	0	190	
11/6/15	GJF	15:55	FB	1	4	3	56	0	0	1	0	0	0	0	1	66	Pacific Loon
		15:30	PH1	0	0	13	50	0	0	0	0	0	0	0	15	78	COME
		15:35	PH2	35	5	10	0	0	0	0	0	0	0	0	0	50	
		16:05	SW1	0	72	1	0	0	0	0	0	0	0	0	0	73	
		15:40	SW2	4	20	15	20	0	0	0	0	0	0	0	0	59	
		15:41	SW3	2	38	6	37	0	0	0	0	0	0	0	0	83	
		15:42	SW4	10	137	7	19	0	0	0	0	0	0	0	0	173	
11/7/15	GJF	11:10	FB	0	1	2	8	0	0	0	0	0	0	0	0	11	
		10:10	PH1	0	0	1	39	0	0	0	0	0	0	0	9	49	COME
		10:20	PH2	0	0	0	0	0	0	0	0	0	0	0	0	0	
		11:00	SW1	0	13	1	0	0	0	0	0	0	0	1	0	15	GBH
		10:25	SW2	0	0	0	0	0	0	0	0	0	0	2	0	2	GBH
		10:26	SW3	0	2	0	40	0	0	0	0	0	0	0	0	42	
		10:27	SW4	0	77	0	29	0	0	0	0	0	0	0	0	106	
11/8/15	GJF	15:10	FB	0	7	0	48	0	0	0	0	0	0	1	1	57	Pacific Loon, GBH
		14:30	PH1	0	0	1	15	0	0	0	0	0	0	0	18	34	1x GBH, 17x COME
		14:40	PH2	23	3	7	0	0	0	0	0	0	0	0	1	34	GBH
		15:15	SW1	0	36	0	0	0	0	0	0	0	0	0	0	36	
		15:45	SW2	0	15	3	0	0	0	0	0	0	0	0	0	18	
		14:46	SW3	0	25	0	30	0	0	0	0	0	0	0	0	55	
		14:47	SW4	0	127	0	19	0	0	0	0	0	0	0	0	146	


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 10/22/2015
Date 10/28/2015
Date 11/7/2015


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
11/3/2015
The Dalles Collection Channel
The Dalles Transportation Channel
The Dalles North Entrance
The Dalles South Rock Channel


°F
The Dalles Dam Adult Fish Ladder(s) River/Water Temperatures
East Fish Ladder
North Fish Ladder
USGS daily tailwater average (2007-2014)
61.0
60.5
60.0
59.5
59.0
58.5
58.0
57.5
57.0
56.5
56.0
55.5
55.0
0:00
11/1/15
1:00
11/2/15
2:00
11/3/15
3:00
11/4/15
4:00
11/5/15
5:00
11/6/15
6:00
11/7/15

USGS: http://www.nwd-wc.usace.army.mil/tmt/documents/ops/temp/201511.lcol.html

Secchi:		Temperatures
5.0	Sun	60.6
5.0	Mon	60.0
2.0	Tue	59.2
3.0	Wed	58.4
5.0	Thurs	58.0
4.0	Fri	57.8
5.0	Sat	57.8
4.1	AVG	58.8

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	
11/1			1.8	8.3	10.3	9.2		1.4	9.2	9.2		1.3	8.3	8.3	
	1.3	8.4	1.8	8.9	10.3	9.2	7.8	1.4	9.1	9.1		1.5	8.2	8.2	
	1.3	8.5	1.6	9.8	10.5	9.4	8.0	1.4	9.2	9.2		1.4	8.4	8.4	
11/2			1.3	9.7	10.8	9.7		1.3	9.0	9.0		1.5	8.3	8.3	
	1.3	8.5	1.6	8.9	10.9	9.8	8.4	1.5	9.1	9.1		1.5	8.2	8.2	
	1.0	8.4	1.6	8.1	10.7	9.6	8.2	1.4	9.1	9.1		1.4	8.4	8.4	
11/3			1.5	11.1	11.4	10.3		1.5	9.0	9.0		1.4	8.3	8.3	
	1.4	8.4	1.5	7.4	11.2	10.1	8.7	1.6	8.7	8.7		1.5	8.3	8.3	
	1.4	8.5	1.7	7.4	11.2	10.1	8.7	1.3	9.5	9.5		1.5	8.3	8.3	
11/4			1.4	9.5	11.8	10.7		1.6	9.0	9.0		1.6	8.2	8.1	
	1.5	8.4	1.5	9.0	11.6	10.5	9.1	1.4	9.2	9.2		1.5	8.3	8.3	
	1.3	9.3	1.5	7.4	11.6	10.5	9.1	1.5	9.1	9.2		1.5	8.3	8.3	
11/5			1.6	9.0	11.5	10.4		1.6	9.1	9.1		1.4	8.4	8.4	
	1.3	8.5	1.6	9.0	11.1	10.0	8.6	1.3	9.2	9.1		1.5	8.2	8.2	
	1.3	9.3	1.6	9.5	11.6	10.5	9.1	1.5	9.1	9.1		1.5	8.3	8.3	
11/6															
	1.5	8.4	1.7	9.3	11.1	10.0	8.6	1.5	9.1	9.1		1.5	8.2	8.3	
	1.5	8.4	1.6	9.4	11.4	10.3	8.9	1.6	9.1	9.1		1.5	8.3	8.3	
11/7															
	1.5	8.4	1.4	9.3	11.9	10.8	9.4	1.6	9.2	9.1		1.4	8.3	8.4	
	1.4	8.5	1.5	9.4	12.0	11.1	9.5	1.6	9.2	9.1		1.5	8.3	8.4	
AVG:	1.4	8.6	1.6	9.0	11.2	10.1	8.7	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.

Leakage increase from east ladder expansion joint with decreasing temperatures.