2018 ANNUAL FISHWAY STATUS REPORT

THE DALLES DAM

Date: January 2019
From: Bob Cordie, Jeff Randall, Claire Addis, Jim Day

INTRODUCTION

The Dalles Dam has specific requirements for Columbia River fish passage that are specified in the annual Fish Passage Plan. The Dalles Dam has two fish ladders for upstream adult fish passage, as well as an ice trash sluiceway and spillway used for downstream steelhead kelt and juvenile fish passage. The following document is a summary of all fish related activities that occurred at The Dalles Dam in 2018. In addition Northern Wasco Co PUD has a turbine that supplies the auxiliary water to the north fishway, which has a complete juvenile bypass system. Information on this systems operation can be acquired through the 2018 Pacific States Marine Fish Commission monitoring report.

FISHWAY OPERATION

The following information includes fish passage system operation for calendar year 2018. Total length of time for annual fishway outages can be determined by referring to previous years' annual reports. These fishways were closed or dewatered for maintenance when they were not in operation.

East Adult Fishway

Jan 1 – Mar 7	Dewatered for winter maintenance
Mar 8 – Nov 31	In full operation with attraction water
Aug 7	Attraction water off half day for required ROV grating inspection
Dec 3 – Dec 31	Dewatered for winter maintenance

North Adult Fishway

Jan 1 – Jan 12	In full operation with attraction water
Jan 13 – Jan 30	Dewatered for annual maintence
Jan 31 – Dec 31	In full operation with attraction water
Aug 7	Attraction water off half day for required ROV grating inspection

Ice/Trash Sluiceway (Juvenile)

Jan 1- Feb 28	End gate closed
Mar 1 – Mar 31	In service with 4 sluice gates open
Apr 1 – Nov 30	In service with 6 sluice gates open
Dec 1 – Dec 16	In service with 4 sluice gates open
Dec 16 – Dec 31	End gate closed

Spillway

Jan 1 – April 9	Closed, all gates on seal
April 10 – Aug 31	Variable spill to gas cap
Sept 1 – Dec 31	Closed, all gates on seal

DEWATERING FISH SALVAGE

NAVLOCK DEWATERING

No Fish were found.

FISHWAY DEWATERING

Dewatering fishways provides the best opportunity for maintenance and inspection. To dewater the fishladders, exit bulkheads are installed and the ladder is allowed to drain. Entrance bulkheads are installed and dewatering pumps operated to dewater all areas of fishways below tailwater elevation. Fisheries personnel enter these areas to salvage trapped fish when water levels allow entry. Fish are pushed toward tailwater or captured. Captured fish are transported to forebay or tailwater, depending on location, fish species, age class and stress levels. A follow up inspection is made

to capture any missed fish. Efforts are made to provide continual water supply during the entire operation to reduce fish stranding and stress. Fishway areas that cannot be dewatered are inspected by ROV underwater camera.

Fishway Dewatering Results

Key; adult=a, juvenile=j, carp=cp, catfish=ca, sculpin=sp, shad=sh, small mouth bass=smb, crappie=cr, pikeminnow=pm, whitefish=wf, redside=rs, large scale sucker=lss

Date	Event	Chinook	Steelhead	Sockeye	Coho	Lamprey	Shad	Sturgeon	Other	Comments	Morts
1/16/2018	N upper	0	4j	0	0	9	0	1	0		0
1/17/2018	N lower	0	0	0	0	0	0	0	0	0	
2/7/2018	E lower		0	0	0	0	0	2	3	Walleye	0
12/3/2018	E upper	1j	1a, 9j	0	0	1a, 2j	~600	2	2	walleye	most shad
12/6/2018	E lower	2a	1a, 1j	0	0	47a, 5j	10	12	1	beaver	all shad

Dewatering Discussion;

Efforts are always made to prevent fish mortalities. However, when mortalities occur, procedures are analyzed to determine how to correct for future dewaterings. Four lamprey mortalities were found atop lower east ladder diffuser grating days after the dewatering. Removal of lamprey from this area is not feasible to the extent of the area below grating. One chinook adult mortality was found at the south entrance coming from a large residual pool. Multiple attempts are used to remove fish from this area and blockers are installed to prevent fish from coming out afterwards. Efforts will be made to add height to the blockers to prevent fish from jumping over.

FISHWAY MAINTENANCE

1) Lamprey weir caps installed at east entrance weirs, completing all entrance weirs for this improvement. Also added a guide blocker to prevent lamprey from impinging in the weir hoist bars.
2) Two expansion joints in east ladder repacked with oakum fiber. This will be an ongoing effort.
3) All entrance weir composite wheel replacement of existing stainless wheels to be completed this season. Rehab entrance weir lifting beams to be assessed.
4) Diffuser valve status and long term planning continues. Several valves for west end not accessible, some may be disconnected from drive shaft. An evalation and comprehensive plan will be developed.
5) East count station window brush replaced. East and north count station power upgraded.
6) East exit weirs gearbox seals and greaseless couplers completed for all weirs.
7) New composite wheels installed on weirs 156 an 157. Weirs 154 and 155 to be completed next winter outage.
8) Two collection channel dewater pumps rehabbed and installed. Plan to cycle through 2 pumps annually.
9) Power source FCQ7 panel complete for more reliable power source to east fishway exit and count station.
10) North fishway rock wall reinforcement repair alternatives developed. Awaiting funding. Vegetation removal from walls continues. Goats may be used this spring.
11) South channel vegetation removal from channel walls completed.
12) Fishway entrance and exit weir automation upgrade planning complete. Assembly start this summer. Installation start next winter outage period.
13) Powerhouse avian line shock hazard mitigation determined. To be installed this winter.

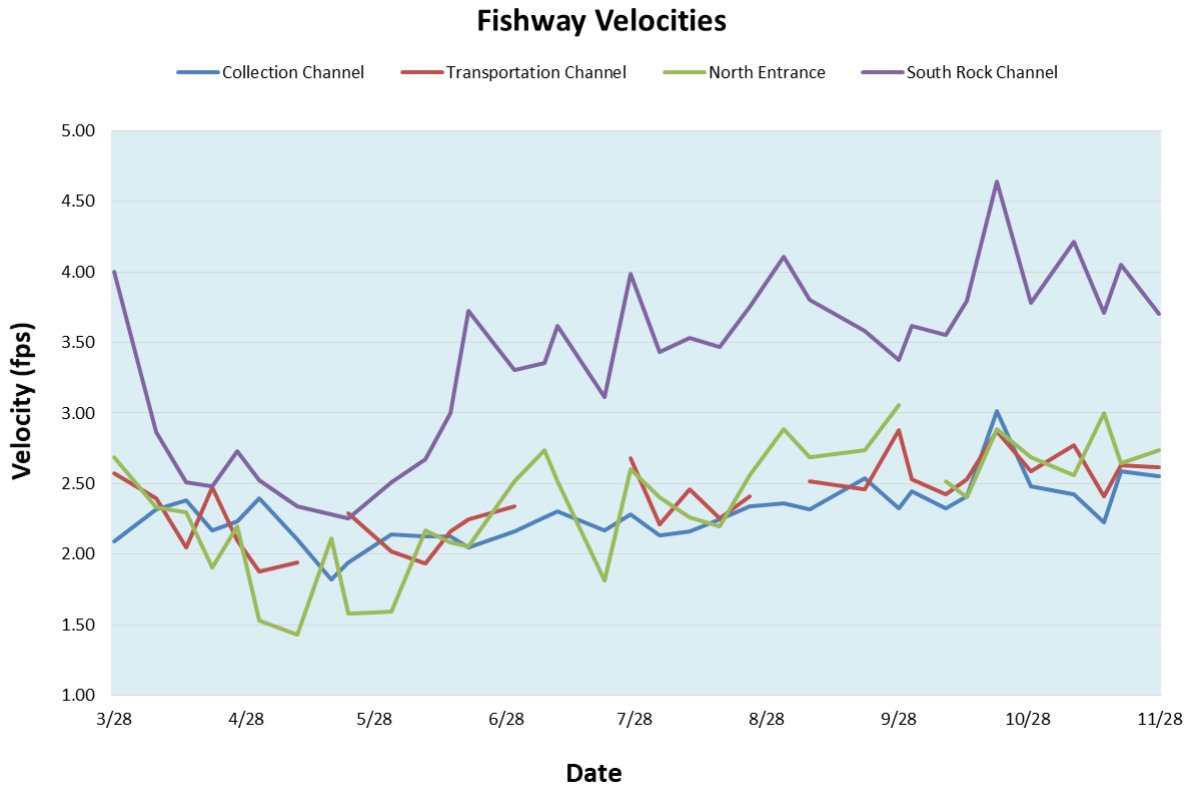
FISHWAY INSPECTIONS

Inspection Criteria Comparison Chart						
	2018		2017		2016	
The Dalles Dam	**Total #**	**%**	**Total #**	**%**	Total	%
Number of inspections	871		848		918	
NORTH FISHWAY	Out of criteria		Out of criteria		OOC	
Exit differential	0	0%	0	0%	0	0.0%
Count station differential	0	0%	0	0%	0	0.0%
Weir crest depth	0	0%	0	0%	24	2.6%
Entrance differential	1	0.1%	3	0%	3	0.3%
Entrance weir N1	0	0%	6	1%	2	0.2%
Entrance weir N2	0	0%	1	0%	0	0.0%
PUD Intake differential	6	0.7%	79	9%	15	1.6%
EAST FISHWAY						
Exit differential	0	0%	6	1%	1	0.1%
Removable weirs 154-157	27	3.1%	26	3%	31	3.4%
Weir 158-159 differential	33	3.8%	10	1%	28	3.1%
Count station differential	0	0%	10	1%	5	0.5%
Weir crest depth	15	1.7%	11	1%	1	0.1%
Junction pool weir JP6	0	0%	4	0%	4	0.4%
East entrance differential	1	0.1%	20	2%	8	0.9%
Entrance weir E1	0	0%	4	0%	1	0.1%
Entrance weir E2	0	0%	21	2%	17	1.9%
Entrance weir E3	0	0%	9	1%	7	0.8%
Collection channel velocity	0	0%	0	0%	1	0.1%
West entrance differential	1	0.1%	7	1%	3	0.3%
Entrance weir W1	1	0.1%	12	1%	4	0.4%
Entrance weir W2	5	0.6%	13	2%	15	1.6%
Entrance weir W3	0	0%	5	1%	1	0.1%
South entrance differential	1	0.1%	28	3%	7	0.8%
Entrance weir S1	0	0%	14	2%	18	2.0%
Entrance weir S2	4	0.5%	5	1%	3	0.3%
JUVENILE PASSAGE						
Sluicegate operation	11	1.3%	10	1%	15	1.6%
Turbine trash rack drawdown	0	0%	0	0%	0	0.0%
Spill volume	0	0%	148	17%	7	0.8%
Spill Pattern	0	0%	97	11%	1	0.1%
Turbine Unit Priority	30	3.4%	266	31%	180	19.6%

Turbine 1% Efficiency	3	0.3%	8	1%	1	0.1%

Inspection Discussion;
There was overall substantial improvement in criteria compliance relative to recent years.
Differential of 158 and 159 had a slight increase due to seal problems on weir 158 resulting in necessary weir adjustments and a coupler failure on 158 weir. Seals were added to weir 158 during the winter maintenance outage. Electrical problems with the PLC settings led to weirs 157 and 156 being out of criteria as well as two brief power overload shutdowns of weir 156. Increase in weir 153 water level OOC was due to problems with upstream weirs.

WATER VELOCITY

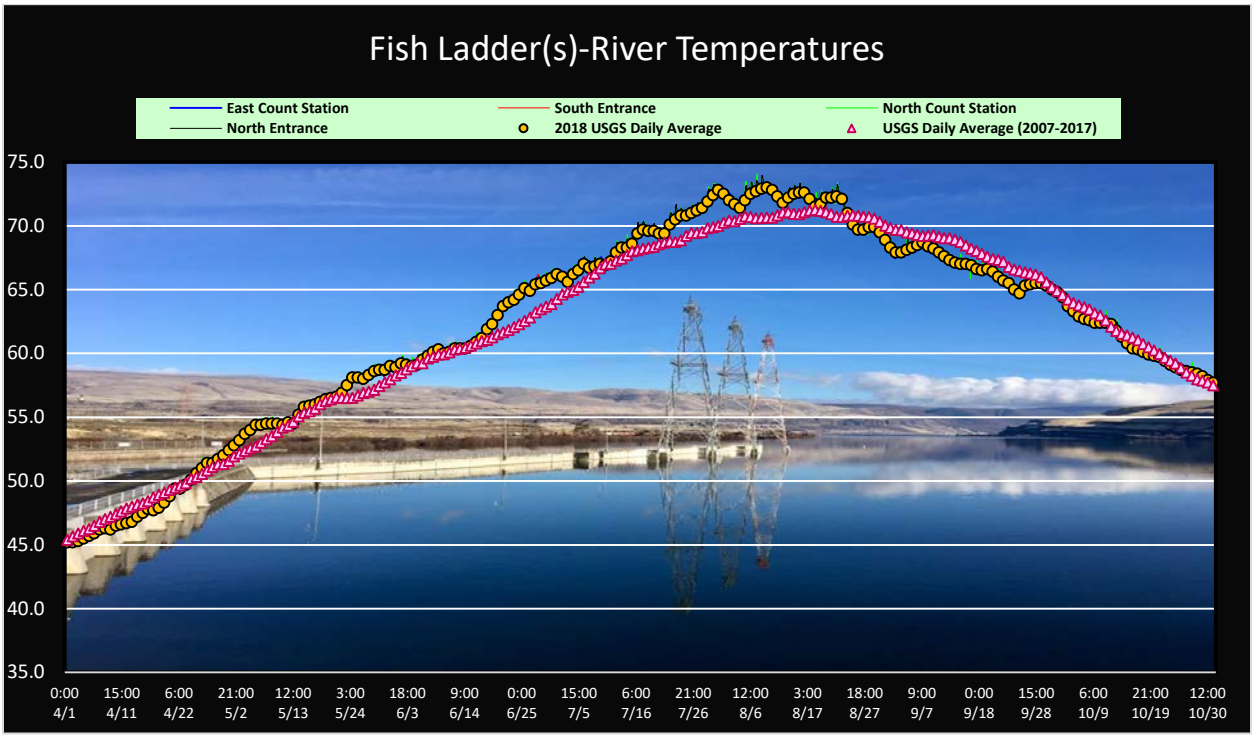


Velocity Discussion;
Fishway channel water velocities were measured weekly during Adult Fish Passage Season (Mar 1 – Dec 1). Floats were timed through all fishway channels that are supplemented by auxiliary water and results were provided in the project weekly fishway status report. Criteria velocities of 1.5 to 4 fps were generally maintained throughout the fish passage season, with a few intances of velocities >4 fps in the South Rock Channel. Velocities were not always taken at unit 22 due to turbulence preventing float tracking. Velocity is generally slower from junction pool to unit 21, however past University of Idaho analysis did not reveal fish passage delays in this area.

GATEWELL/INTAKE TRASH RACK DEBRIS MONITORING

Gatewell drawdowns are a frequent measurement of water level between forebay and gatewell used to determine turbine intake trashrack debris loads. As in previous years, all maintained well within the criteria limit (+ or – 0.5'). The Dalles dam is unique to other dams in that gatewell drawdown measurements have not been found out of criteria for past 20+ years, nor has gatewell debris been a problem.

WATER QUALITY



Water Quality Discussion;

Water clarity was read by secchi dish at the count stations. Water clarity data is not included in this report due to its questionable accuracy, but can be obtained on request. Temperature monitoring with data loggers in each fishway is provided weekly in the fishway status reports. Additional monitoring will be done to determine differences from upper to lower ladder. The following graph is a compilation of weekly readings collected by data loggers in the east and north fishladders. Readings are taken immediately upstream of the count stations and the lower entrance area of each ladder.

CALIBRATION

Calibration (comparing digital display and staff gauge readings vs tape measure) checks on all water level stillwells and weirs done weekly to assure accuracy. Maintenance is notified when they are found off by more than 0.3'. Human error and weather conditions is factored in.

The Dalles	3/30	4/7	4/13	4/20	4/21	4/26	5/4	5/8	5/18	5/22	5/27	6/2	6/6	6/11	6/18	6/27	7/7	7/12	7/15	7/27	8/4	8/10	8/15	8/21	9/1	9/7	9/13	9/21	9/26	10/3	10/15	10/18	10/24	10/30
E1 no criteria	0.4	0.0					0.1				-0.2	0.3	-0.3			0.2							0.3											0.1
E2	-0.1	-0.3	-0.3	0.1	-0.4	-0.3	-0.5	-0.8	-0.9	-0.9	-0.8	0.3	-1.1		-0.2	-0.2	0.0	-0.1	-0.1	-0.1	-0.1	0.0	-0.1	-0.2	0.0	No	Access	"	0.0	no access	no access	no access	-0.1	-0.1
E3	-0.1	-0.2	-0.3	0.1	-0.3	-0.3	-0.3	-0.5	-0.8	-0.7	-0.7	0.4	-0.9	-0.1	0.0	-0.1	0.1	-0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.0	No	Access	"	0.1	"	"	"	-0.1	0.1
W1	-0.1	-0.1	-0.3		-0.1	-0.2	-0.3	-0.5	-0.7	-0.2	-1.3	1.1	-1.5	-0.1	0.0	-0.1	0.1	0.0	0.1	0.0	0.0	0.2	0.1	0.1	0.1	No	Access	"	0.0	"	"	"	0.2	1.0
W2	0.0	-0.1	0.0		0.0	0.1	0.0	-0.3	-0.6	-0.8	-1.1	1.1	-1.3	0.1	0.3	0.1	0.4	0.3	0.4	0.3	0.3	windy	0.3	0.3	0.4	No	Access	"	0.3	"	"	"	0.1	1.1
W3 closed		0.3	0.3																													0.0		
S1	0.4	0.1	0.5	-0.2	0.5	0.2	0.2	-0.2	-0.2	-0.2	-0.2	0.4	-0.6		0.3	0.3	0.4	0.3	0.4	0.3	0.3		0.4	0.3	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.4
S2	0.1	0.1	0.3		0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.1	-0.1		0.2	0.3	0.2	0.4	0.3	windy	0.2		0.3	0.3	0.4	0.3	0.2	0.2	0.3	0.3	0.8	0.3	0.3	0.1
N1	0.2	0.0	0.2	-0.2	0.3	0.2	0.1	0.3	0.3	0.3	0.3	-0.2	0.5		0.3	0.1	0.1	0.1	0.3	0.4	0.3		0.3	1.3	0.3		0.2	0.2	0.2	0.2		0.3	0.2	0.2
159	-0.2	-0.2	-0.1		-0.2	-0.1	-0.2	-0.2	0.1	-0.1	-0.1	-0.2	-0.1	-0.2	-0.2	-0.1	-0.1	0.0	-0.1	-0.2	-0.1			-0.1	0.0	-0.1	-0.1	-0.1	-0.1	-0.1		-0.1	-0.3	-0.2
158	-0.3	-0.2	-0.3		-0.3	0.1	0.0	0.0	0.0	0.0	0.0	-0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0			0.0	0.1	0.1	0.1	0.1	0.0	0.0		-0.2	-0.2	-0.2
E Chan	-0.1	0.1	0.3	0.3	0.4	0.3	0.3	0.0	0.0	0.2	0.0	0.4	0.2	0.4	0.2	0.1	-0.9	-0.5	-0.3	-0.3	-0.5	0.1	0.3	0.5	0.1			0.1	-0.1			-0.1	0.2	0.0
E TW	-0.8	-0.1	0.1	0.6	-0.2	0.2	-0.1	-0.1	-0.1	-0.3	-0.1	-0.1	0.0		-0.3	-0.1	-0.4	-0.2	-0.3	-0.3	-0.5	0.4	0.4	0.2	0.0			0.2	0.0			-0.1	0.1	0.0
W Chan	-0.3	0.0	-0.2		0.0	-0.1	0.0	0.4	0.0	-0.1	0.0	0.3	0.0	-0.1	-0.3	-0.2	-0.3	-0.2	-0.2	-0.2	-0.3	windy	-0.3	-0.2	-0.2			-0.3	-0.2			-0.2	-0.1	-0.3
W TW	0.0	0.0	0.0		-0.2	0.0	-0.2	0.1	-0.2	-0.2	-0.2	-0.2	0.0	-0.1	0.3	0.0	0.3	0.1	0.1	0.2	0.3		0.1	0.2	0.3			0.2	0.1			0.3	0.3	0.1
S Chan	-0.3	-0.3	-0.2		-0.2	-0.2	-0.3	-0.1	-0.3	-0.2	-0.3	-0.2	-0.3		-0.2	-0.1	-0.2	-0.2	-0.2	0.1	-0.2		-0.2	-0.3	0.1	-0.3	-0.2	-0.2	-0.3	-0.2		-0.1	-0.3	-0.1
S TW	0.3	-0.2	-0.1		-0.1	-0.2	0.1	spill	spill	spill	spill	spill	spill	spill	0.0	0.0	0.0	-0.1	0.1	spill	0.1		-0.1	-0.1	0.0	-0.1	0.0	0.1	0.1	0.1		0.1	0.0	0.1
N Chan	-0.2	-0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.1	0.2	0.3	0.3		-0.3	-0.1	0.1	-0.2	-0.1	0.1	-0.1		-0.1	0.1	-0.1	-0.1	-0.3	-0.1	-0.2	-0.3		-0.3	-0.1	0.0
N TW	-0.3	spill	spill	spill	spill	spill	spill	spill	spill	spill	spill	spill	spill	spill	spill	spill	spill	spill	spill	spill	spill	spill	spill	spill	-0.6	-0.5	-0.5	-0.6	-0.3	-0.3		-0.3	-0.4	-0.4
E FB						-0.1							windy										-0.3						-0.2			-0.2		
N FB						0.2	-0.1						-0.1			0.0			0.0				0.0						0.1			-0.3		

Calibration Discussion;

Calibration readings out of criteria are indicated by highlight. Weekly measurements were the rule from March through November resulting in a larger number of measurements taken than in previous typical years. 2018 there were 663 measurements taken and 81 readings out of criteria or 12.2% OOC. This was much lower than 2017=127 readings OOC or 36%. 2018 was slightly higher compared to 2016=32 readings OOC or 9% , 2015=24 readings OOC or 9%, 2014=22 readings OOC or 5.4% and 2013=28 readings OOC or 8%.

Some of the data accuracy is in question due to visually good entrance flow conditions and gate calibration OOC did not result in openings or differentials being OOC. In-field testing/discussion with maintenance staff indicated that the east tailwater float still well may have a plugged orifice. North tailwater was not measurable during spill. Wasco PUD maintenance responsible for this adjustment.

Values for east and west entrance gates from 5/8 to 6/6 were due to very high tailwater that overtopped the existing PLC instrumentation. Values are derived from old stillwell reel and float instruments. Gates were open to 11 and 12 feet during this time and within FPP compliance for openings and differentials. Project maintenance was notified for needed adjustments to south gates and was not always able to respond immediately to make adjustments. Plans are underway for full automation replacement which should improve accuracy and reliability. We also took a closer look at calibration procedures which led to increased calibration effort and coordination with maintenance staff for 2019. A new FLUKE laser measurement tool was acquired in the fall of 2018 partly as a result of safety restrictions on east and west entrance catwalks. Safety concerns limited access to tape reel measurement points.

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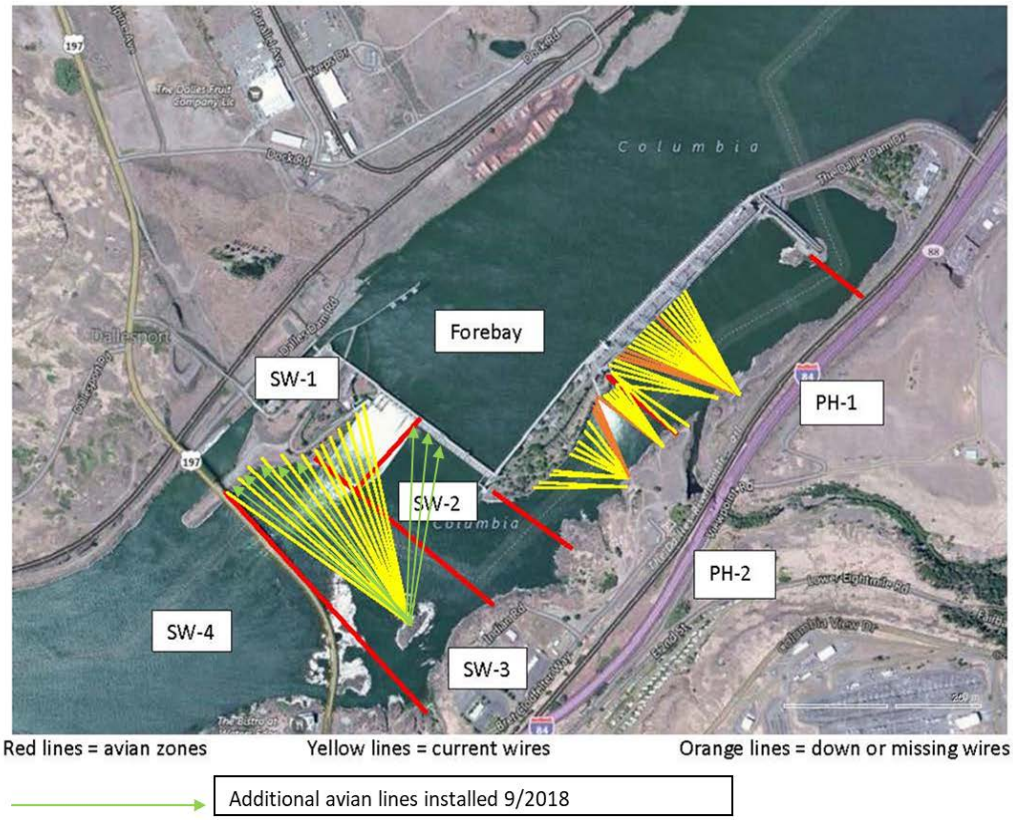
AVIAN PREDATOR ABATEMENT

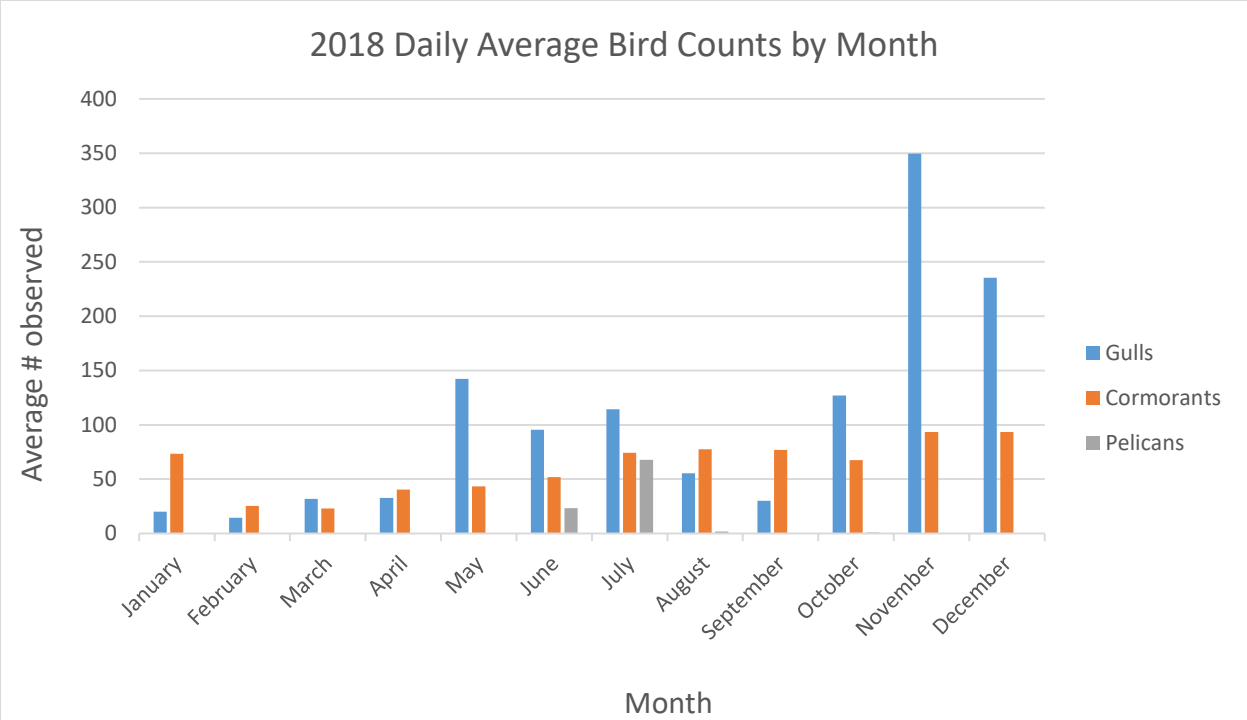
The United States Department of Agriculture (USDA) was contracted to provide avian hazing abatement via pyrotechnics from April 16 – July 31. Hazers were present during all daylight hours (~06:00-20:00). Generally, hazing by boat occurred the first half of the day (8hrs), then hazing continued from the peninsula downstream of the Dalles bridge (SW4, 6 hrs). There were periods of time that hazers could not use pyrotechniques due to barges and/or heavy wind days. USDA hazers concentrated specifically on zones upstream and downstream of the US-197 bridge. Twenty new avian lines were installed on 9/19/18. See figure below for avian line locations. Lines were added in SW3 to increase the density of the grid for more effectiveness. Several lines were added south of the spillwall SW2 due to increased predation noticed there from last seasons high spill levels.

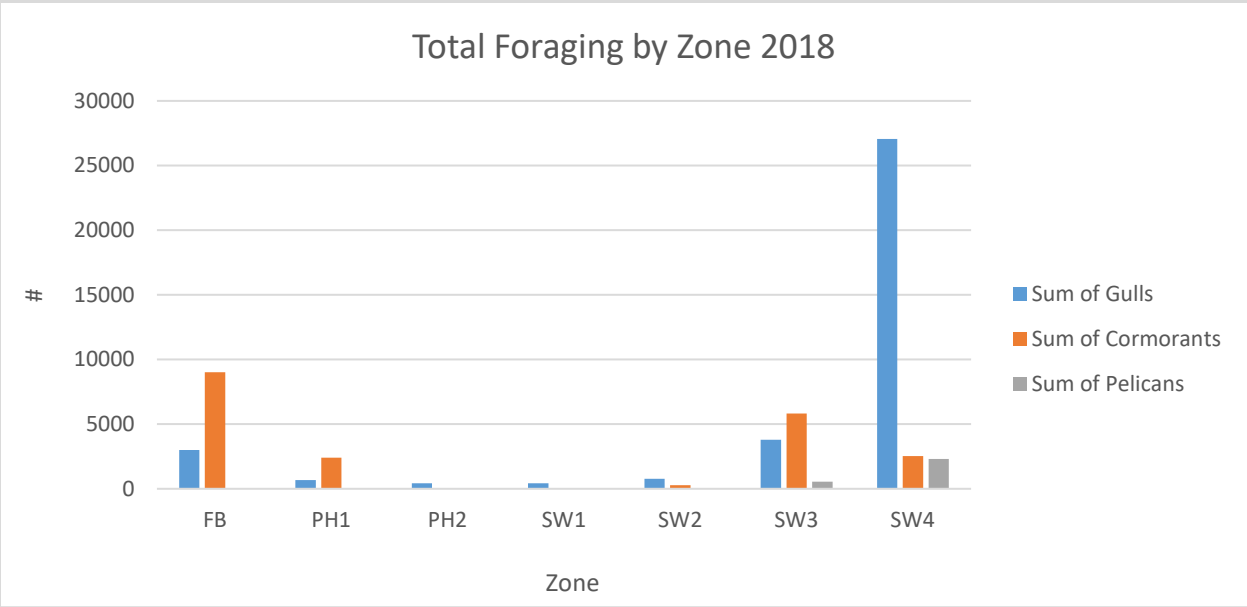
Avian Predator Discussion;

Project fisheries staff provided daily avian counts for the entire year. The highest bird counts were on the spillway side of the dam downstream of The Dalles US-197 bridge (SW4). Gulls foraged heavily in this zone. The majority of resting birds were double crested cormorants in the forebay (FB) often perched on the electrical transmission towers near the Washington shore and pelicans perched on the rock islands above the bridge (SW4). Daily counts were highly variable, but compared to the 2015 daily average observed during fish passage season (4/1-10/31), mean gull and cormorant numbers are within the normal range (85.84 and 61.76, respectively; normal range based on 2015 data: 11-142 for gulls, 7-80 for cormorants), but pelicans are showing increasing numbers (2018 mean = 13.55; normal range based on 2015 data: 0-9.53). Other birds included grebes, mergansers, and eagles. Grebes were observed in the



summer along with pelicans but the vast majority of grebes and mergansers were in the fall and winter months during the juvenile shad outmigration. There continues to be high numbers of Bald Eagles overwintering in Westrick Park, feeding primarily on post-spawn adult shad. Previous studies have shown no impact from avian lines. Refer to Fisheries Field Unit "Evaluation of Interaction Between Overwintering Bald Eagles and the Avian Line Array at The Dalles Dam 2013" report for further details.



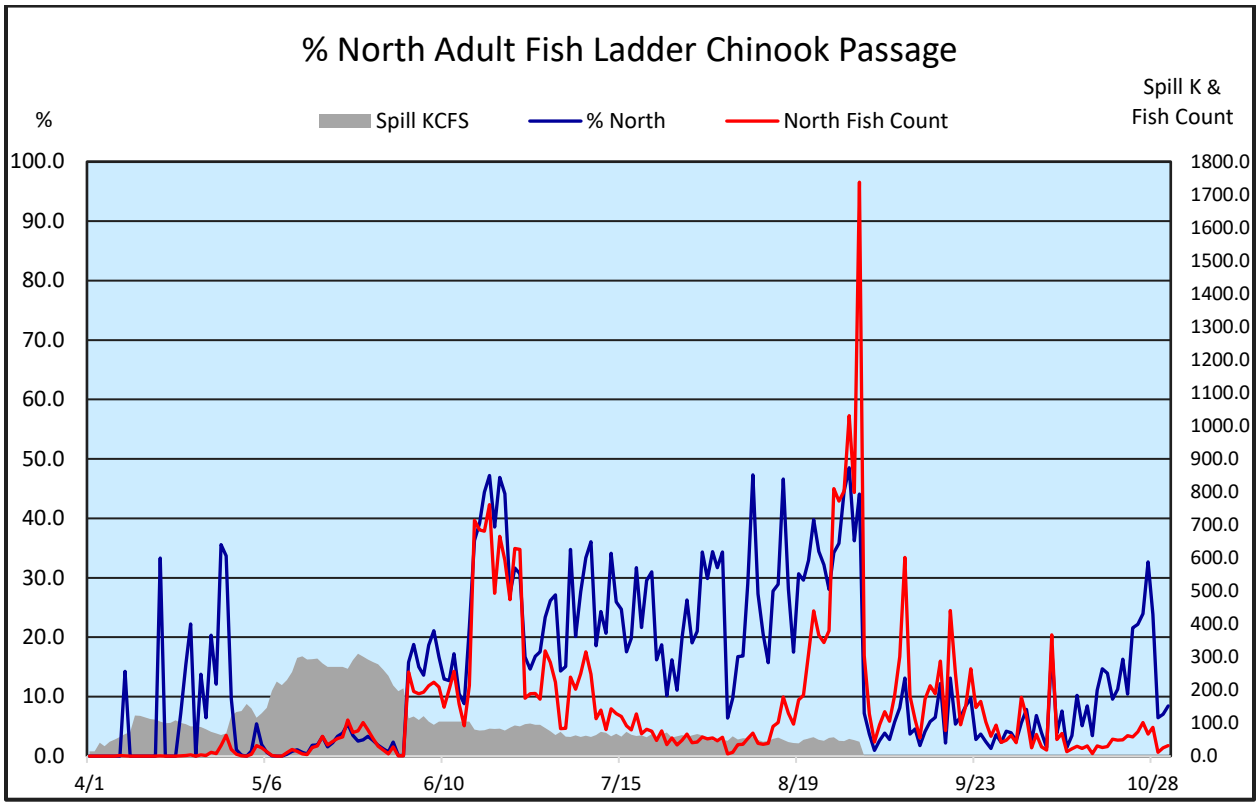


Beyond The Dam Avian Discussion;

Miller Island is a well known nesting colony of primarily California Gulls and to lesser extent Ringbill Gulls. Recent PIT recovery efforts from the island has revealed substantial predation on ESA listed salmonid species. There is a high likelyhood that this predation occurs below The Dalles and John Day. Efforts are being made to increase the avian abatement success. Avian lines were increased, hazing schedule is scrutinized and other means of abatement, such as laser and other methods are being explored. The use of lethal removal at the dam is also being discussed at Division level since NWW district conducts limited lethal removal as a necessary tool and NWP district does not.

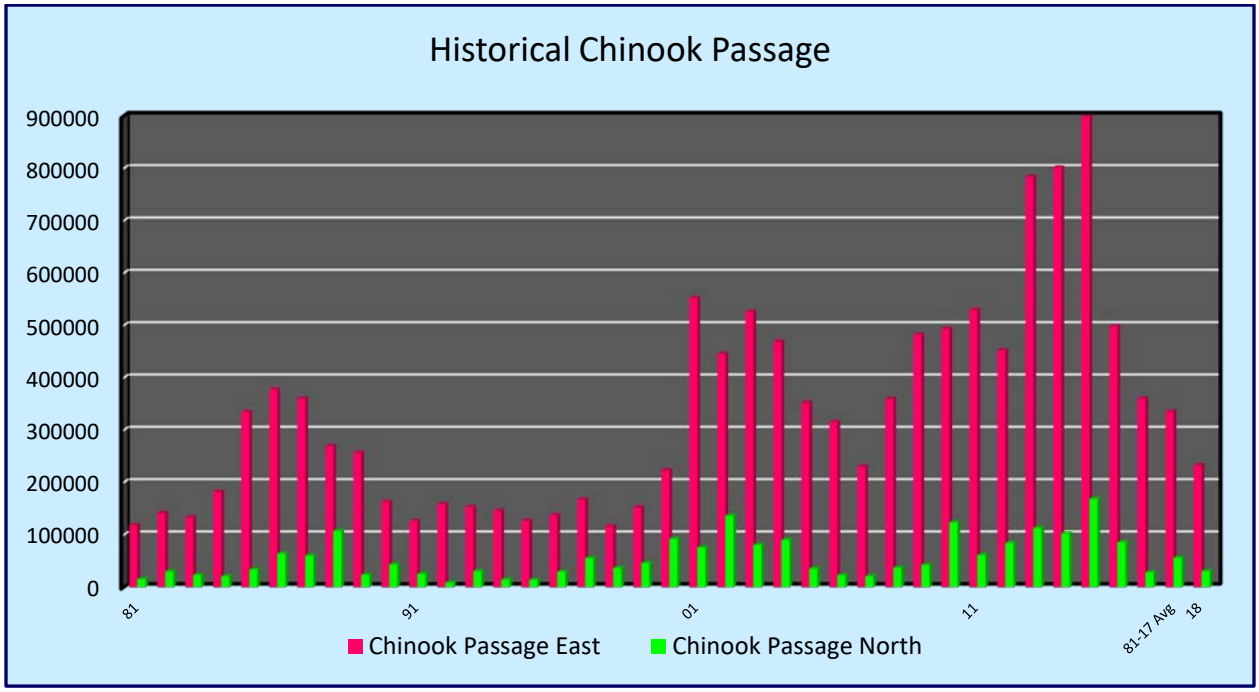
NORTH LADDER PASSAGE VS SPILL

Spill operation has been documented to affect north fishladder passage in the past several years. In previous years spill >110KCFS tended to block salmonids from entering the north ladder. During late April and early May, this trend is apparent. It was again clearly demonstrated that with no spill, salmonids are not attracted to the north entrance area either; hence the drop in north passage immediately after spill stops.



FISH COUNTING

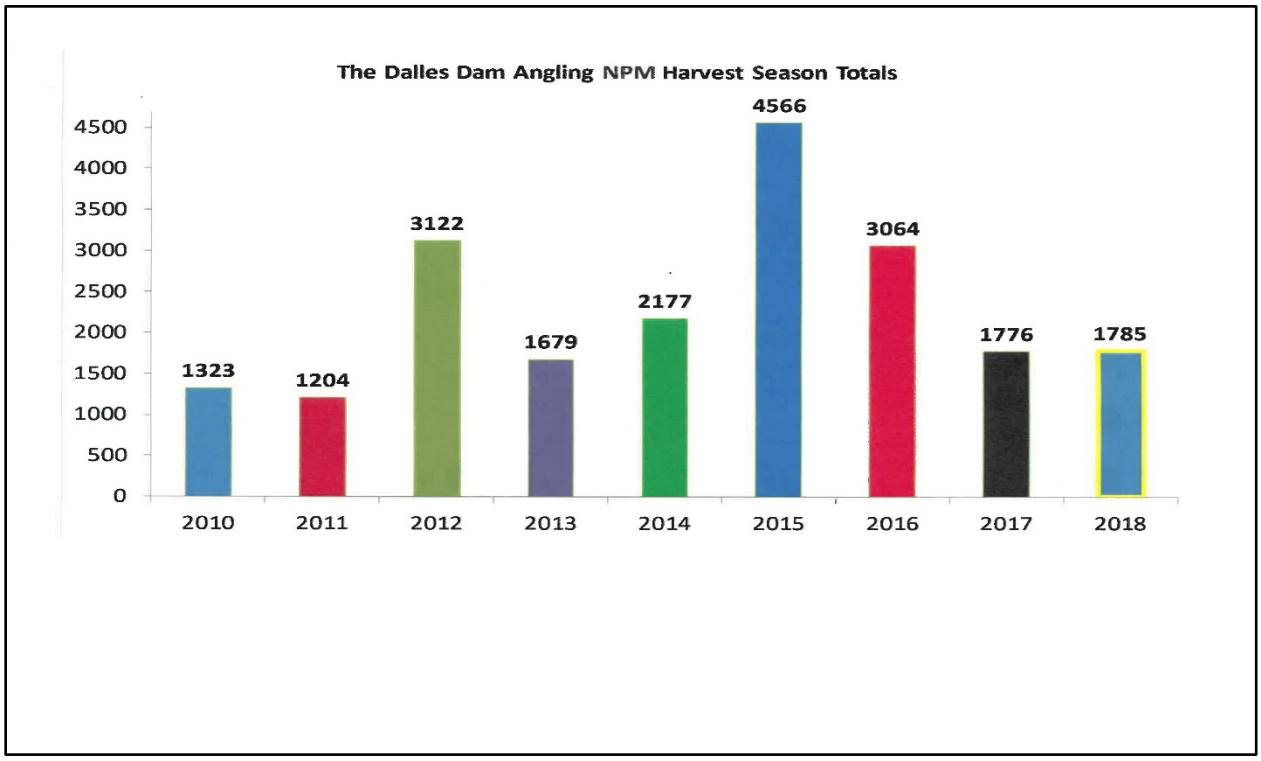
Visual fish counting was conducted 4/1/18 to 10/31/18 by Normandeau Environmental Consultants contract. Counts were downloaded to the FPC website. Refer to Corps of Engineers 'Annual Fish Passage Report' 2018 for fish count and comparison to previous years.



PIKEMINNOW ABATEMENT

Washington Dept Fish and Wildlife conducted hook and line dam-angling in support of the on-going BPA funded Columbia River Predator Control Program Dam angling from May through Oct 8, in conjunction with ODFW and PSMFC. A total of 1,785 northern pikeminnow >230mm were caught at The Dalles Dam. Most angling occurred from powerhouse tailrace. The concern of catch and release of non-native predators (bass and walleye) is still being raised through FPOM.

Graph coutesy of Paul Dunlop WDFW



SEA LIONS

Sea lions sightings in the tailrace were similar to last year. No sightings have been made inside the fishways to date, but several have been in close proximity to entrances. The following is a log of all the sea lion sightings in 2018.

2/7	foraging	in front of powerhouse unit 22, possible foraging for sturgeon
2/10	swimming	in front on PH1, unit 20
2/11	swimming	Juvenile moving upriver from Rockfort to cruise ship dock
2/18	foraging	SW2
3/31	eating	PH1
4/13	swimming	PH2, near west entrance
4/13	swimming	PH1, possibly same individual
4/16	swimming	PH2, near west entrance
4/26	swimming	near south entrance
4/26	swimming	near east entrance
5/1	swimming	near west entrance
5/3	swimming	Near east entrance x 2.
5/4	swimming	Near east entrance, hazed. Than hazed again at south entrance.
5/7	swimming	sluiceway outfall
5/8	feeding	150m sw of South entrance. Traveled east after meal.
5/10	swimming	PH1 near east entrance, only breached 1x
5/12	swimming	PH1 near east entrance
5/26	feeding	In sluceway outfall, eating shad? Hazed at 1700.
5/27	swimming	Large adult and juvenile reported by hazers near TW nav-lock.
5/28	swimming	Adult and juvenile seen near south entrance and on south shore sw2.
7/19	swimming	PH2 near west entrance observed by USDA and hazed away.
10/25	swimming	Mid-powerhouse. Seemed to be passing through

Sea Lion Discussion;
The few sea lions that inhabit the tailrace downstream of the dam usually forage immediately in front of the fishway entrances early in the season. Our USDA hazers immediately haze them, which usually remains effective through the remainder of the summer and fall. Sea lion hazing for 2019 will require additional approval by NOAA.

FISHWAY VEGETATION PLAN

In order to preserve the structural integrity of fishway channel walls, vegetation removal is a priority. During winter dewatering, structural crews and resource maintence crews removed large woody vegetation from south channel rock walls in the east fishway. Goat grazing in planned for spring 2019 to remove shorter vegetation, such as blackberry, english ivy, poison oak and other small shrubs growing in the fish channel. Hand removal of vegetation and goat grazing is also planned for the north fish ladder during winter dewatering in early 2019 and spring 2019, respectively.

RESEARCH

The following are a list of fish related research and contract personnel that were on site during the 2018 passage season;

CRITFC – Captured adult Pacific lamprey as part of the on-going project to restore lamprey to various tributaries. Umatilla, Nez Perce and Yakama Nation were alloted lamprey for propigation. 1700 lamprey were captured.

Normandeau Environmental Consultants – Continued to perform fish counting at the north and east fishways via count stations.

Oregon Dept of Fish and Wildlife –Captured, tagged, and collected biological data from northern pikeminnow as part of an evaluation of the Northern Pikeminnow Management Program.

Oregon Department of Fish and Wildlife and Fish Passage Center – Continued to provide once monthly fishway inspections of adult and juvenile systems.

Pacific States Marine Fish Commission – FERC required sampling at the Northern Wasco County PUD intake structure as per the Coorperative Agreement between Pacific States Marine Fisheries Commission and Wasco County PUD.

Pacific States Marine Fisheries Commission PTAGIS Information System – monitored Thin Wall PIT Tag detection system in The Dalles east and north count stations.

U.S. Dept of Agriculture – Provided avian hazing of piscivorous birds to reduce avian predation on juvenile salmonids May to August via pyrotechnics during juvenile passage season.

U. S. Geological Survey – Total Dissolved Gas (TDG) and water temperature monitoring.

Yakama Nation - Captured adult Pacific lamprey as part of the on-going project to restore lamprey to various tributaries. Yakama Nation worked with the Nez Perce and CTUIR to help with lamprey collection efforts. Yakama Nation captured 219 lamprey by Sept 16.

University of Idaho captured and released of adult Pacific lamprey in order to monitor upstream migratory movements outfitted with radio- and PIT-tags at Bonneville Dam. tagged lamprey for testing lower entance flows 6/1 to 8/31. Entrances were opened and fish turbines were reduced in order to change from salmon to lamprey criteria.

Tina Lundell-Portland district water quality section placed temperature string in front of both ladder exits to look for cooler water gradients from the forebay to perhaps tap into this colum of cooler water due to envirnomental concerns of potential overheating summer ladder conditions. Data still being analyzed.

Removal of derelict equipment attached at the powerhouse main unit intakes not completed this year and is not scheduled until 2018.

Supervisor Commentary;
The Dalles Dam fisheries would not be successful if it were not for the incredible fisheries team of Jeff Randall, Claire Addis and Jim Day. Their commitment and professionalism show in the quality of their work. Their flexibility and dedication allows us to complete our mission. Thank You!
Bob Cordie

Approved by; Ron Twiner, Operations Project Manager, The Dalles Dam