

Washington Department of Fish and Wildlife

Deep River Net Pens Annual Report

In partial fulfillment of requirements for environmental permitting
for juvenile salmon aquaculture production

September 1, 2023, to August 30, 2024

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

WASTE DISCHARGE PERMIT NO. WA0040053,

Lower Deep River Net Pens

1. Name and contact

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Report prepared by Ann Leroux

2. Summary of fish during the season

Dates fish were added and released from pens.

Species	Net Pen #	# Received	Date received	# Planted	FPP*	Total LBS Planted	Date Released	Total Food fed lbs	Total Mortality
Spring Chinook	1	127,158	3/29/2024	126,648	59	2,158	5/20/2024	1,339	510
Coho	4	736,218	10/23/2023-10/31/2023	682,600	15	45,265	5/1/2024	33,960	64,218
Spring Chinook	5	90,000	10/23/2023	88,000	12	7,131	11/20/2023	536	2,000
* Fish per pound									

Mortality

The high mortality in Coho pen 4 is due to the duration they reside in the pen. The Coho are present from September through May. During this time, they are hit by predation the hardest. Spring Chinook stocks are only at DRNP for a 1-month acclimation. Loss from otters, racoons, herons, cormorants, and various mergansers and other fish ducks are abundant, causing shortages in the Coho populations. The mortality is not due to any fish health issues.

3. Feeding rates

2023

Date	Container	Manufacturer	Feed Type	Feed	Additive	Quantity Monthly	Weekly
Oct 29, 2023	Net Pen 4 Coho	EWOS	Grower/Fry	Pacific 2.0 mm	None	613	153.25
Oct 29, 2023	Net Pen 5 Spring Chinook	EWOS	Grower/Fry	Pacific 2.0 mm	None	135	33.75
Nov 5, 2023	Net Pen 4 Coho	EWOS	Grower/Fry	Pacific 2.0 mm	None	666	166.5
Nov 5, 2023	Net Pen 5 Spring Chinook	EWOS	Grower/Fry	Pacific 2.0 mm	None	82	20.5
Nov 26, 2023	Net Pen 4 Coho	EWOS	Grower/Fry	Pacific 2.0 mm	None	440	110
Nov 19, 2023	Net Pen 4 Coho	EWOS	Grower/Fry	Pacific 2.0 mm	None	1,840	460
Nov 19, 2023	Net Pen 5 Spring Chinook	EWOS	Grower/Fry	Pacific 2.0 mm	None	228	57
Nov 12, 2023	Net Pen 4 Coho	EWOS	Grower/Fry	Pacific 2.0 mm	None	745	186.25
Nov 12, 2023	Net Pen 5 Spring Chinook	EWOS	Grower/Fry	Pacific 2.0 mm	None	91	22.75
Dec 3, 2023	Net Pen 4 Coho	EWOS	Grower/Fry	Pacific 2.0 mm	None	792	198
Dec 10, 2023	Net Pen 4 Coho	EWOS	Grower/Fry	Pacific 2.0 mm	None	660	165
Dec 17, 2023	Net Pen 4 Coho	EWOS	Grower/Fry	Pacific 2.0 mm	None	88	22
Dec 24, 2023	Net Pen 4 Coho	EWOS	Grower/Fry	Pacific 2.0 mm	None	792	198
Dec 26, 2023	Net Pen 4 Coho	EWOS	Grower/Fry	Pacific 2.0 mm	None	616	154
Dec 27, 2023	Net Pen 4 Coho	EWOS	Grower/Fry	Pacific 2.0 mm	None	352	88
Dec 29, 2023	Net Pen 4 Coho	EWOS	Grower/Fry	Pacific 2.0 mm	None	352	88

2024

Date	Container	Manufacturer	Feed Type	Feed	Additive	Quantity Monthly	Weekly
Jan 7, 2024	Net Pen 4 Coho	EWOS	Transfer	Transfer 2.0 mm	None	1,232	308
Jan 8, 2024	Net Pen 4 Coho	EWOS	Transfer	Transfer 2.0 mm	None	748	187
Jan 19, 2024	Net Pen 4 Coho	EWOS	Transfer	Transfer 2.0 mm	None	220	55
Jan 28, 2024	Net Pen 4 Coho	EWOS	Transfer	Transfer 2.0 mm	None	396	99
Feb 4, 2024	Net Pen 4 Coho	EWOS	Transfer	Transfer 2.0 mm	None	528	132
Feb 11, 2024	Net Pen 4 Coho	EWOS	Transfer	Transfer 2.0 mm	None	528	132
Feb 18, 2024	Net Pen 4 Coho	EWOS	Transfer	Transfer 2.0 mm	None	1,320	330
Feb 25, 2024	Net Pen 4 Coho	EWOS	Transfer	Transfer 2.0 mm	None	968	242
Mar 17, 2024	Net Pen 4 Coho	EWOS	Grower/Fry	Pacific 2.0 mm	None	1,320	330
Mar 24, 2024	Net Pen 4 Coho	EWOS	Grower/Fry	Pacific 2.0 mm	None	3,652	913
Mar 31, 2024	Net Pen 4 Coho	EWOS	Grower/Fry	Pacific 2.0 mm	None	2,552	638
Mar 31, 2024	Net Pen 1 Spring Chinook	EWOS	Grower/Fry	Pacific 2.0 mm	None	10	2.5
Apr 7, 2024	Net Pen 4 Coho	EWOS	Grower/Fry	Pacific 2.0 mm	None	2,112	528
Apr 7, 2024	Net Pen 1 Spring Chinook	EWOS	Grower/Fry	Pacific 1.2 mm	None	60	15
Apr 14, 2024	Net Pen 4 Coho	EWOS	Grower/Fry	Pacific 2.0 mm	None	3,740	935
Apr 14, 2024	Net Pen 1 Spring Chinook	EWOS	Grower/Fry	Pacific 1.2 mm	None	119	29.75
Apr 21, 2024	Net Pen 4 Coho	EWOS	Grower/Fry	Pacific 2.0 mm	None	3,740	935
Apr 21, 2024	Net Pen 1 Spring Chinook	EWOS	Grower/Fry	Pacific 1.2 mm	None	119	29.75
Apr 27, 2024	Net Pen 1 Spring Chinook	EWOS	Grower/Fry	Pacific 1.2 mm	None	66	16.5
Apr 28, 2024	Net Pen 4 Coho	EWOS	Grower/Fry	Pacific 2.0 mm	None	616	154
Apr 28, 2024	Net Pen 1 Spring Chinook	Bio-Oregon	Starter	BioVita Starter #2	None	44	11
Apr 28, 2024	Net Pen 1 Spring Chinook	EWOS	Grower/Fry	Pacific 1.2 mm	None	132	33
May 5, 2024	Net Pen 4 Coho	EWOS	Grower/Fry	Pacific 2.0 mm	None	2,332	583
May 5, 2024	Net Pen 1 Spring Chinook	Bio-Oregon	Starter	BioVita Starter #2	None	132	33
May 5, 2024	Net Pen 1 Spring Chinook	EWOS	Grower/Fry	Pacific 1.2 mm	None	132	33
May 12, 2024	Net Pen 1 Spring Chinook	Bio-Oregon	Starter	BioVita Starter #2	None	44	11
May 12, 2024	Net Pen 1 Spring Chinook	EWOS	Grower/Fry	Pacific 1.2 mm	None	64	16
May 19, 2024	Net Pen 1 Spring Chinook	EWOS	Grower/Fry	Pacific 1.2 mm	None	417	104.25

4. Drug and pesticides

No drug or pesticide used during the season.

5) Sampling of Nutrients

	Date		Up stream			Down stream		
			Turbidity NTU	DO mg/L	BOD mg/L	Turbidity NTU	DO mg/L	BOD mg/L
2023	Sept	*						
	OCT	26	2.07	9.89	<2	3.64	10.12	<2
	NOV	15	7.06	10.14	<2	5.89	9.97	J 2.4
	DEC	14	9.81	12.11	<2	9.15	12.16	<2
2024	JAN	3	6.95	10.62	J 2.7	6.26	10.5	<2*
	Feb	6	7.16	10.12	<2	5.92	10.24	<2
	Mar	6	3.54	13.15	<2	2.92	13.03	<2
	April	3	3.3	11.4	<2	3.13	11.4	<2
	May	7	3.76	11.65	<2	4.2	11.35	J 2.2
	JUN	*						
	JUL	*						
	AUG	*						
		J = Estimated below detection limit.						

*There were no fish fed in the net pens September 2023, and June 2023 to August 2024.

No nutrient sampling is required for these months.

Nutrient Sampling requirement from Permit.

Parameter ^b	Units & Speciation	Minimum Sampling Frequency ^d	Sample Type
Turbidity (Upstream) ^{e, f}	NTU	Monthly ^c	Grab ^a
Turbidity (Downstream) ^{e, g}	NTU	Monthly ^c	Grab ^a
Dissolved Oxygen (Upstream) ^{e, f}	mg/L	Monthly ^c	Grab ^a
Dissolved Oxygen (Downstream) ^{e, g}	mg/L	Monthly ^c	Grab ^a
Biochemical Oxygen Demand (BOD ₅) (Upstream) ^{e, f}	mg/L	Monthly ^c	Grab ^a
BOD ₅ (Downstream) ^{e, g}	mg/L	Monthly ^c	Grab ^a

6. Documentation of Spill

No spills occurred at this location.

7. Documentation and use of Chemical

There were no antibiotic or chemical treatment during the season.

8. Corrective Actions

No corrective actions were necessary during the season.