Yakima Basin Artificial Production and Associated Facilities

Presentation to Yakima Basin Science & Management Conference 2025

June 17, 2025

Yakama Nation Fisheries

Management purpose of hatchery programs

Credit: M. Hess / B. Johnson

1.) Harvest Fishery – Fish for harvest

2.) Supplementation – Prevent extirpation, rebuild natural production

3.) Reintroduction – Restore extirpated populations

Two different management approaches

Supplementation & Reintroduction [Integrated management]

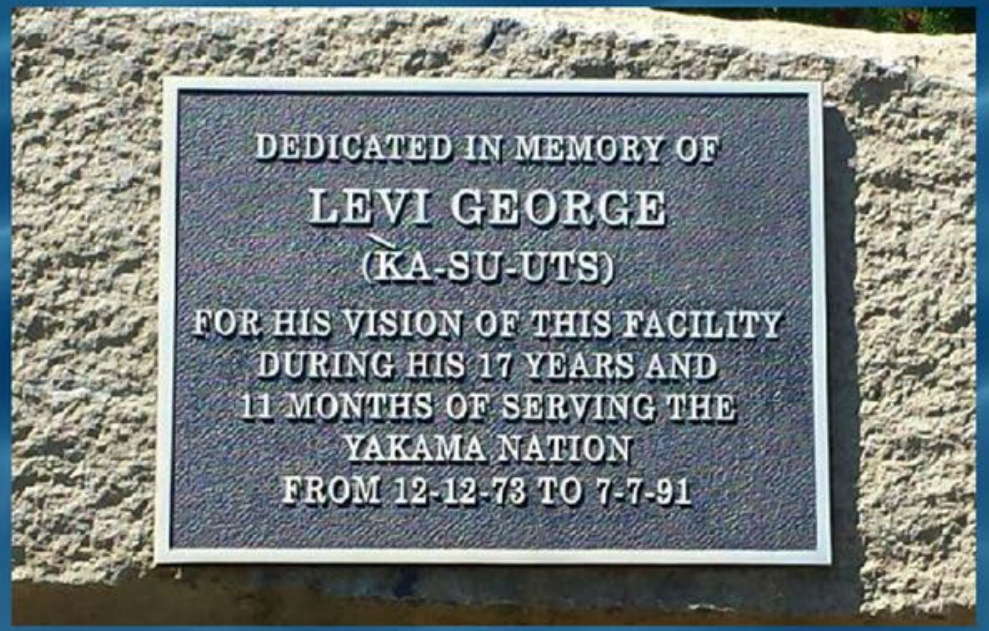
- Two environments, One population
- Support rebuilding natural production
- Prevent or restore extirpated populations

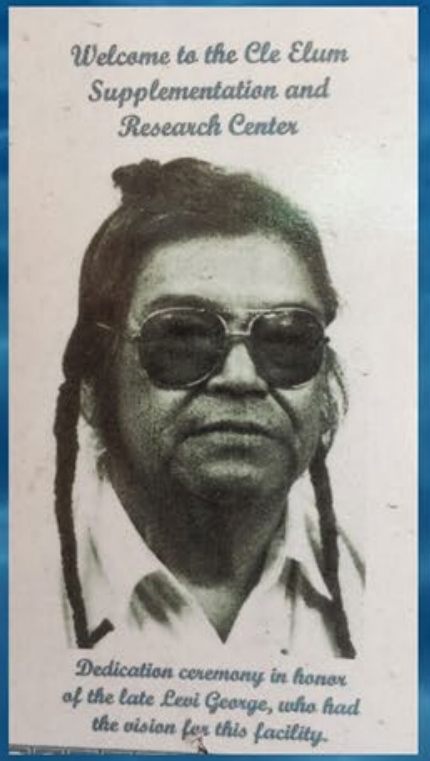
Harvest Fishery [Segregated management]

- Two environments, Two populations
- Promotes harvest of hatchery fish
- Managed to not impede recovery of natural populations

Levi George Spring Chinook Facility

A Legacy of Loss for Fish Populations of the Columbia River Basin…





Tempered by the Vision of Levi George

Levi George Smolt Releases

Brood Year	Smolts Released	Release Year
2020	761,925	2022
2021	809,197	2023
2022	467,673	2024
2023	318,913	2025
2024	430,669	2026
5 yr ave	**555,567**	

Melvin R Sampson Coho Facility

Coho 700,000; 200,000 parr and 500,000 smolt

Parr release: last week of June into 10 Kittitas County tributaries; Smolt release 2nd week of April into main stem Yakima River.

Parr are released into Reecer Cr., Wilson Cr., Badger Cr., Manastash Cr., Coleman Cr., Naches Side Channel, Cooper River, and Cle Elum River.

Smolts are released at Ringer Loop boat ramp located just upstream of the Yakima River Canyon.

Daniel Brownlee: Hatchery Manager, Toby Ambrose: Fish Culturist III, and Lester Wahsise: Fish Culturist III.

MRSCF releases from 2020-2024

Brood Year	Parr	Smolt	Total
2020		210,955	210,955
2021	357,955	138,713	496,668
2022	325,571	210,429	536,000
2023	203,804	510,110	713,914
2024	75,000	637,950	712,950

Prosser Hatchery

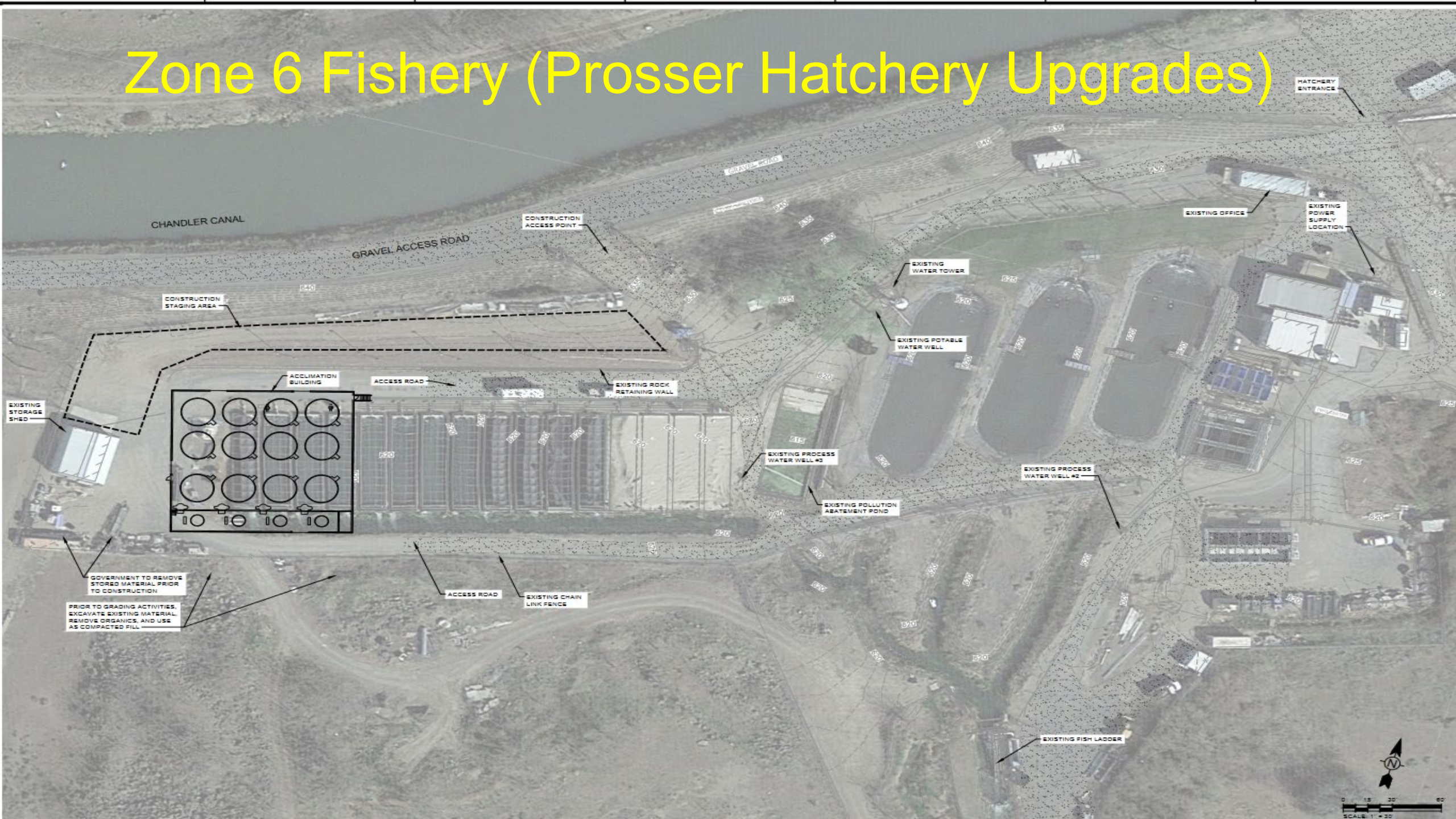
Annual Production

- 1,700,000 URB Subs
- 500,000 Yakima Subs
- 1,000,000 Summer Chinook Subs
- 250,000 Summer Yearlings
- 500,000 Eagle Creek Coho
- 500,000 Yakima Coho
- Steelhead Kelts (Varies year to year)

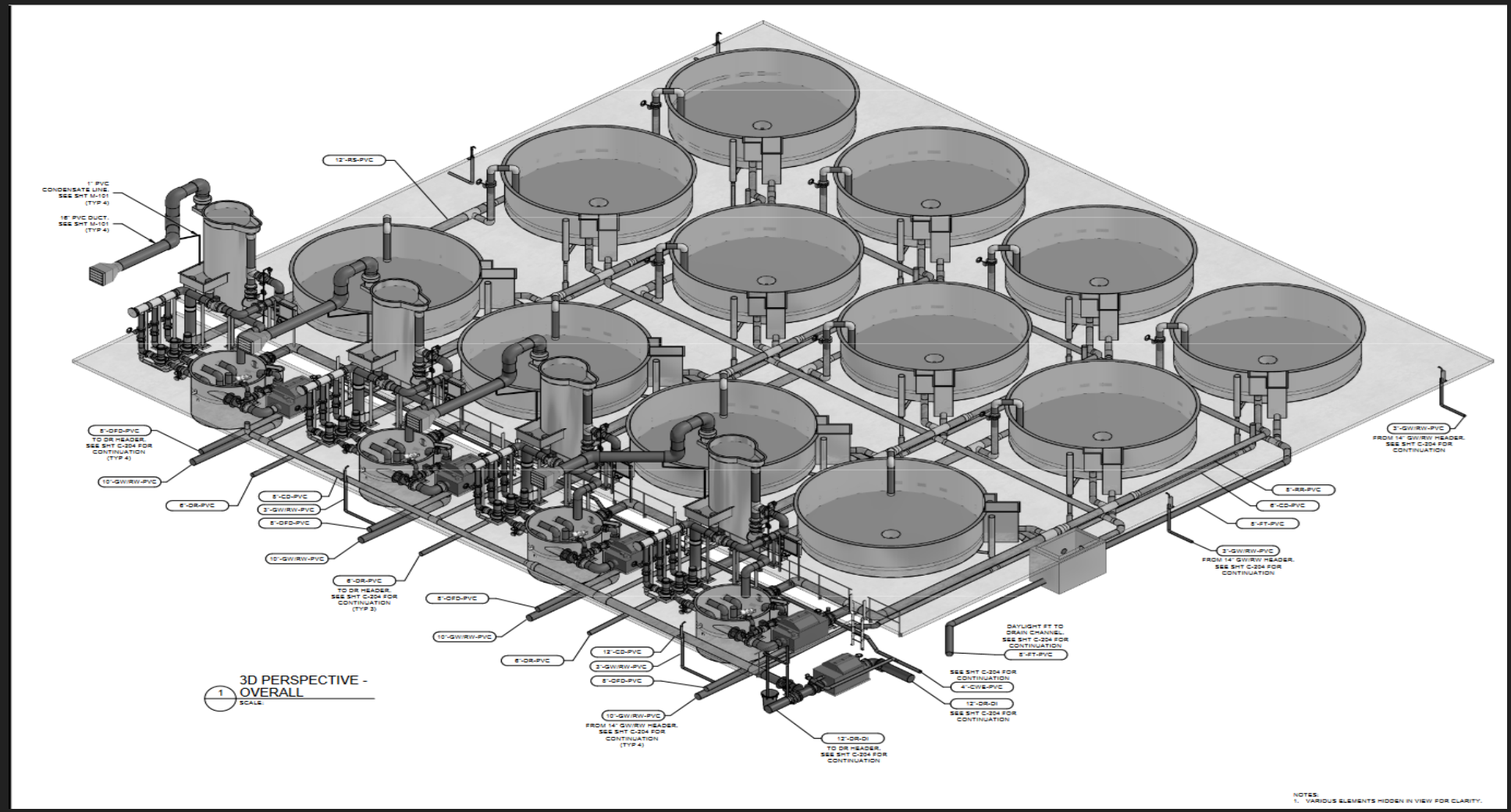
Prosser/Marion Drain releases from 2019-2024

	5 Year Ave. Release	Release site	Release date	Funding
PH URB	474,691	PH	April	BPA
PR URB	524,283	PH	April	JDM/CoE
LWH URB	1,062,650	PH	April	JDM/COE
Bonn URB yearling	194,765	PH	March	JDM/CoE
Summer PH	370,958	PH	April	BPA
Summer MD	38,366	MD	April	BPA
Summer Roza	99,435	RD	April	BPA
Summer Wapatox	64,311	WX	May	BPA
Summer Nelson S	57,916	NS	May	BPA
Summer Clark F	259,621	CF	April	BPA
Summer Yearling	102,855	PH	March	NOAA/PST SRKW
Coho PH	489,861	PH	April	BPA
EC Coho	428,823	PH	April	NOAA Mitchel Act
5 Year Average Total	4,168,535			
Steelhead	324	PH	November	CRTFIC/BPA

Zone 6 Fishery (Prosser Hatchery Upgrades)



Zone 6 Fishery (Prosser Upgrades)



Klickitat Hatchery

- State property title transfer to Yakama Nation 2024

•Segregated harvest programs, all stocks

US v. OR Production Goal:

- 4,000,000 Fall Chinook (subyearling)
- 1,000,000 Coho (Late, yearling)
- 600,000 Spring Chinook (yearling)
- Integrated program:
- Increase to 800K Spring Chinook (yearling)

History:

Constructed with Mitchell Act funding, 1949-1951

In continuous operation since 1951, operated by State of Washington

Operation transferred to the Yakama Nation in 2006

KH Infrastructure Upgrades:

Fish Accord funding (BPA one time capital funding).

- Upgrades focused on spring Chinook program. Shift from segregated to integrated program. Increase from 600k to 800k yearling smolts.

Key Work Elements:

1. Re-routing new main spring-water pipeline through bridge.
2. Circular tanks (x8)for spring Chinook smolts, acclimation to include river water supplies.
3. New adult holding & spawning structures, including PIT detection systems.
4. New Pollution Abatement vessels.

Construction started in October 2024, completion anticipated in Fall 2026/

1

2

3

4

Artist rendering of the upgraded Klickitat Hatchery.

Artist rendering of the Klickitat Hatchery growout circulars.

Artist rendering of the Klickitat Hatchery intake.

Graphics courtesy of Schnabel Engineering

Photo courtesy of the Yakama N'tion Museum

Klickitat River fisherman dipnetting, circa t985.

YAKAMA DIP NET FISHERY

Rebuilding the Klickitat Hatchery for the Future

The Klickitat Hatchery is operated by the Yakama Nation and is important to one of the last dip net fisheries for our people. The hatchery has been in continuous operation since 1950. Through the 2008 Fish Accord Agreement, Bonneville Power Administration and the Yakama Nation have partnered together to rehabilitate this aging hatchery to better support fisheries across the Pacific Northwest.

Sockeye Reintroduction 2009-2024

Brood year	Bonneville Dam Count	Trap & Haul to Cle Elum Lake	Natural Production Returnees
2009	177,823	1,000	
2010	386,525	2,500	
2011	185796	4,000	
2012	515,673	10,000	154
2013	185,505	4,500	691
2014	614,179	10,000	2576
2015	510,706	10,000	95
2016	342,498	10,000	3949
2017	87,693	1000	137
2018	193,816	4600	201
2019	63,046	0	201
2020	341,739	10,000	4379
2021	151,713	2,500	95
2022	663,253	10,000	510
2023	327,600	10,000	421
2024	755,909	10,000	2789
		100,100	16198

The Yakama Nation has 11 CDL drivers to assist in juvenile and adult fish transfer

Future Work

- Additional funding opportunity and upgrades
- Naches/American River Spring Chinook stock

BIA/NOAA IRA Competitive ($184M) Hatchery - PACIFIC SALMON AND STEELHEAD HATCHERY MAINTENANCE AND MODERNIZATION

A) OBJECTIVE

The Bureau of Indian Affairs (BIA), in coordination with NOAA Fisheries (NMFS), is pleased to announce the availability of Inflation Reduction Act funds for Pacific salmon and steelhead hatchery maintenance and modernization. This is a unique and one-time merit-based competitive opportunity that ensures the long-term viability and effectiveness of critical infrastructure for the propagation and reintroduction of Pacific salmon and steelhead in support of certain tribal fisheries. Under this opportunity, BIA seeks applications for projects from eligible tribes to support existing fish hatchery facilities that support Pacific salmon and steelhead.

This one-time funding aims to:

- Improve the efficiency and effectiveness of fish hatcheries in rearing healthy Pacific salmon and steelhead, and
- Enhance the resilience of hatcheries to climate change and other environmental stressors, and
- Support tribal co-management of Pacific salmon and steelhead resources, ensuring the health of these culturally and economically vital species for future generations.

Hatcheries play a critical role in safeguarding Pacific salmon and steelhead populations. Through strategic investments in upgrades to aging facilities, incorporation of innovative technologies, and enhancement of biosecurity measures, this one-time funding allows hatcheries to optimize fish health, increase survival rates, and further contribute to conservation efforts and safeguard vital ecosystems.

BIA/NOAA IRA Competitive ($184M) Hatchery - PACIFIC SALMON AND STEELHEAD HATCHERY MAINTENANCE AND MODERNIZATION

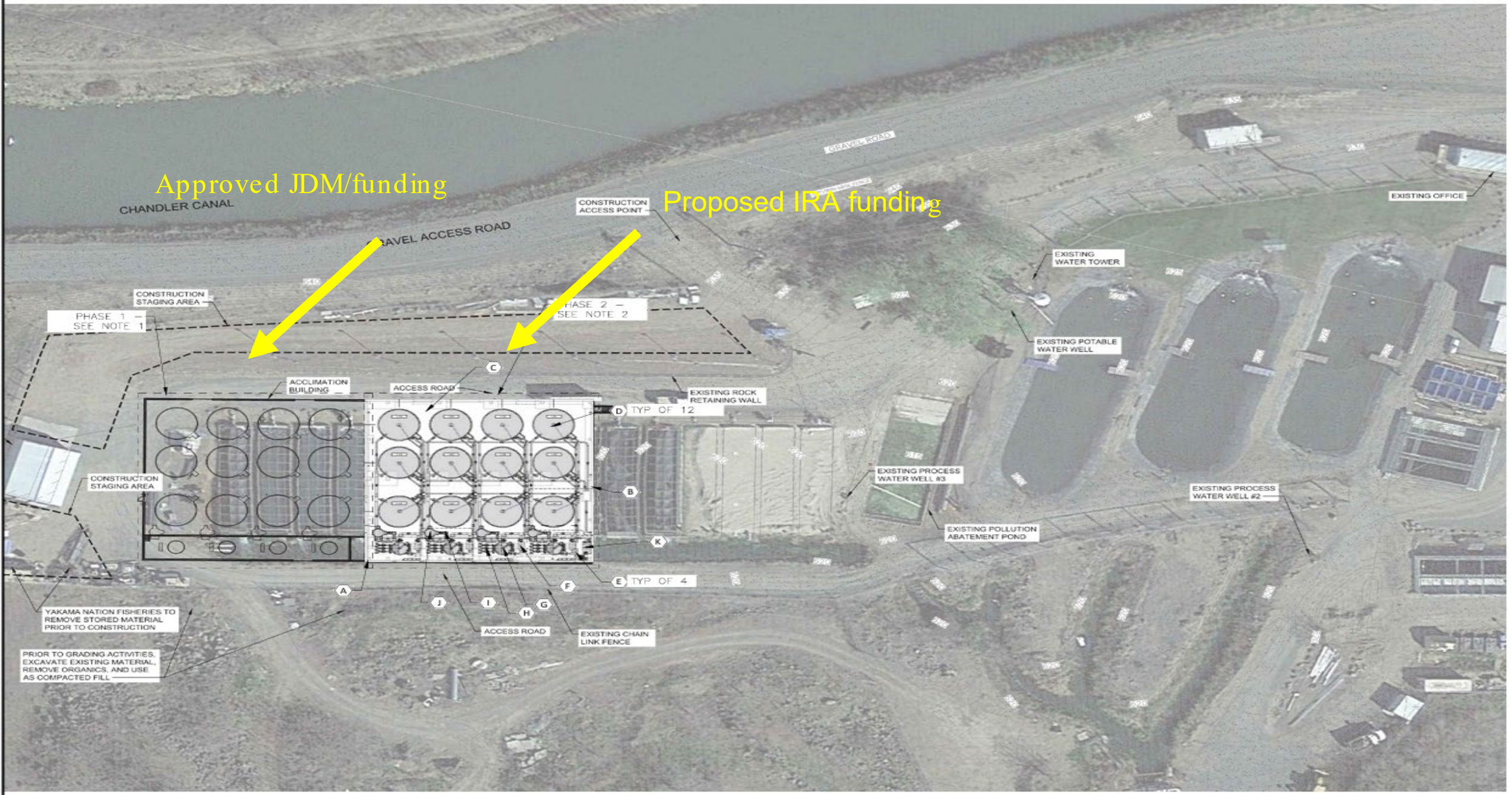
A) ELIGIBLE APPLICANTS

Only the following federally recognized tribes are eligible to apply for an award:

- Lummi Nation
- Stillaguamish Tribe
- Tulalip Tribes of Washington
- Suquamish Tribe
- Squaxin Island Tribe
- Puyallup Tribe of Indians
- Nisqually Indian Tribe
- Makah Tribe
- Quileute Indian Tribe
- Quinault Indian Nation
- Nooksack Tribe
- Port Gamble S'Klallam
- Jamestown S'Klallam Tribe
- Sauk-Suiattle Indian Tribe
- Lower Elwha Klallam Tribe
- Upper Skagit Indian Tribe
- Skokomish Indian Tribe
- Hoh Indian Tribe
- Swinomish Indian Tribal Community
- Hoopa Valley Tribe
- Yurok Tribe
- Metlakatla Indian Community
- Muckleshoot Indian Tribe
- Confederated Tribes of Warm Springs
- Yakama Nation
- Nez Perce Tribe
- Confederated Tribes of the Umatilla Indian Reservation

A) FUNDING AVAILABILITY

BIA anticipates approximately $184 million in funding will be available under this notice. The amount of funds available for competitive awards may increase or decrease based on the availability of funding appropriated to NMFS and provided to BIA via an Interagency Agreement. BIA will not accept proposals less than $250,000 or greater than $6,000,000.



PROSSER HATCHERY - PHASE 2

SCALE: 1"= 30'

Marion Drain and Prosser Hatchery Upgrades

Facility Upgrades		
Professional Service/Contractual: **Hatchery Building and Aquaculture systems.**	12,320 sf hatchery [DN1] (See Appendix A) that includes: Partial recirculating aquaculture equipment (filters, aeration, UV, oxygenation, recirculation pumps), four 20' diameter dual drain tanks, sixteen 20'x4.5' rearing vats, twelve Heath egg incubation stacks, mechanical/electrical room, feed storage room, sensors and alarms for salmon production security, and additional areas for storage/workspace. Systems will increase production to 400,000 sub-yearling and 250,000 yearling fall-run Chinook Salmon without increasing water flow demand.	$5,309,000
Professional Service/Contractual: **Head Tank.**	A head tank for processing well water and providing required head for distribution into the hatchery that includes: counter current degassing systems, piping systems, and a small enclosure to protect the equipment. (see Appendix A)	$374,000
Professional Service/Contractual: **Liquid Oxygen (LOX) Tank and Distribution system**	Liquid oxygen bulk storage tank and distribution system to the hatchery for partial recirculation systems and emergency supply to tanks. Requires contract with LOX supplier as an operations and maintenance item.	$45,000
Professional Service/Contractual: **Backup Generator and Transfer Switch**	Diesel or propane backup generator system with automatic transfer switch to power all new equipment.	$223,000
		TOTAL $5,951,000

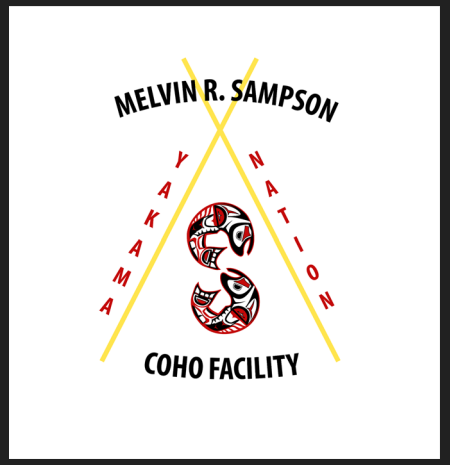
Facility Upgrades		
Professional Service/Contractual: **Hatchery Building and Aquaculture systems.**	11,660 sf hatchery addition [DN2] (See Appendix A) that includes: Four modules of partial recirculating aquaculture equipment (1 module per 3 tanks that includes, filters, aeration, UV, oxygenation, and recirculation pumps), twelve 20' diameter dual drain tanks, effluent water treatment, sensors and alarms to maintain salmon production security. The new building ties directly into previous upgrades at the hatchery, further reducing water demand of the facility.	$5,597,000
Professional Service/Contractual: **Liquid Oxygen (LOX) Tank and Distribution system**	Liquid oxygen bulk storage tank and distribution system to the hatchery for partial recirculation systems and emergency supply to tanks. Requires contract with LOX supplier as an operations and maintenance item.	$322,000
		TOTAL $5,919,000

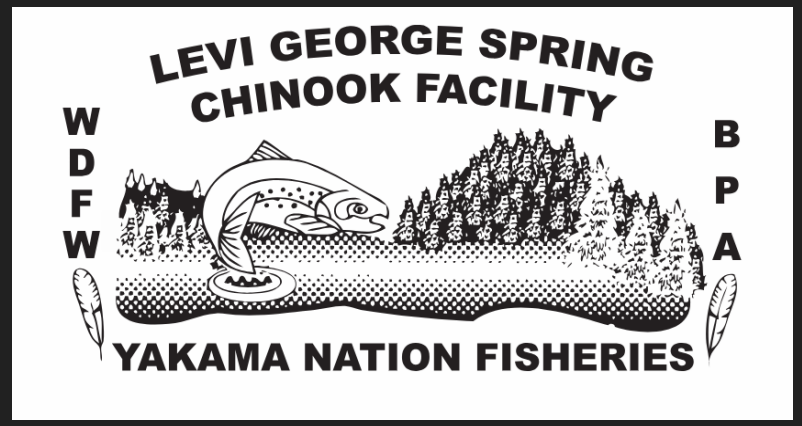
Proposed Marion Drain Hatchery Upgrades

Naches Spring Chinook Feasibility Study


8 1'97

Thank You


MELVIN R. SAMPSON
YAKAMA NATION
COHO FACILITY


LEVI GEORGE SPRING
CHINOOK FACILITY
WDFW
BPA
YAKAMA NATION FISHERIES


FISHERIES
YKFP
YAKAMA NATION


Lower Yakima River
YAKAMA NATION
Supplementation & Research Complex

YAKAMA NATION FISHERIES RESOURCE MANAGEMENT · LEVI GEORGE SPRING CHINOOK FACILITY

RECOMMEND LABELING COOKWARE & PLEASE BRING FRUIT CUT OR SLICED. NO WHOLE WATERMELONS PLEASE.

SELF-GUIDED TOURS @10:00AM & SERVE LUNCH @ 12:00PM

JULY 18, 2025 @ THE CLE ELUM HATCHERY

Open house • Potluck

SALMON BAKE!

THIS IS A POTLUCK GATHERING & SALMON WILL BE SUPPLIED, WE ASK THAT YOU BRING A SIDE DISH (FOLLOWING THIS ALPHABET BELOW)

A-H: SALAD/CASSEROLE, **I-P**: FRUIT/DESSERT, **Q-Z**: BEVERAGES (NO ALCOHOL)

PLEASE CONTACT CHARLIE WITH ANY QUESTIONS · EMAIL: STRC@YAKAMAFISH-NSN.GOV

Brood Year	Total Collected	Total Morts.	Pre-Spawn Survival	Production Spawners			% BKD Loss	Total Egg Take	Live Eggs	% Egg Loss	Smolts Released
				Males	Jacks	Females					
1997	261	23	91.2%	106		132	2.6%	482,287	451,458	6.4%	386,048
1998	408	70	82.8%	140		198	1.4%	725,682	655,229	9.7%	589,683
1999	738	24	96.7%	213		222	2.7%	832,397	762,607	8.4%	758,789
2000	567	61	89.2%	170		278	9.2%	937,516	878,534	6.3%	834,285
2001	595	171	71.3%	145		223	53.2%	408,485	380,169	6.9%	370,236
2002	629	89	85.9%	125		261	10.0%	893,186	884,381	1.0%	836,975
2003	441	54	87.8%	115		200	0%	820,933	761,902	7.2%	735,981
2004	597	70	88.2%	125		245	0.4%	830,108	762,349	8.2%	691,109
2005	526	57	89.1%	136		241	0.8%	870,741	802,666	7.8%	769,505
2006	519	45	91.3%	122		239	1.7%	772,357	703,657	8.9%	642,977
2007	473	49	89.5%	134		216	.6%	749,131	715,857	4.4%	676,602
2008	480	38	92.1%	151		253	5.5%	915,563	832,938	9.0%	752,109
2009	486	57	88.3%	142		219	1.4%	850,404	848,339	0.2%	744,170
2010	483	20	95.9%	97		193	2.5%	757,124	727,030	4.0%	702,874
2011	455	28	98.9%	96		197	0%	743,617	712,969	4.1%	684,711
2012	363	14	96.1%	111		209	0%	768,310	739,528	3.7%	712,207
2013	385	15	96.2%	136		178	.56%	633,899	612,458	3.4%	576,266
2014	384	39	89.8%	133		188	0%	769,852	617,009	5.8%	617,506
2015	436	116	73.8%	128		182	.55%	654,361	615,189	6.0%	595,062
2016	394	57	85.9%	142		173	0%	687,218	652,110	5.1%	594,410
2017	396	27	93.2%	152		193	2.1%	707,232	671,605	5.0%	634,586
2018	305	6	98.1%	119		164	0%	557,418	525,057	5.8%	499,345
2019	313	25	96.5%	100		174	2.0%	538,071	501,136	6.9%	450,481
2020	403	27	93.7%	144		229	1.7%	696,903	665,649	4.6%	666,415
2021	435	19	95.6%	146		243	.8%	762590	743,266	2.6%	725,734
2022	398	23	90.2%	144		205	15.6%	795,200	554,719	5.5%	375,666
2023	427	35	90.7%	125	**13	194	33.5%	514,914	*403,766	1.3%	Released in spring 2025
Mean	455	48	90.3%	133	13	209	5.5%	728,722	683,762	5.5%	639,374

Table 2. LGSCF spawning and survivor statistics (Hatchery brood only) for brood years 2002-2023.

Brood Year	Total Collected	Total Morts.	Pre-Spawn Survival	Production spawners			% BKD Loss	Total Egg Take	Live Eggs	% Egg Loss	Smolts Released
				Males	Jacks	Females					
2002	201	22	89.1%	26		72	4.2%	232,316	93,115	9.2%	87,837
2003	143	12	91.6%	30		51	0%	201,690	87,966	8.2%	88,734
2004	126	19	84.9%	22		49	0%	166,043	100,168	6.7%	94,339
2005	109	6	94.5%	26		45	0%	139,194	94,250	11.7%	90,995
2006	136	21	84.6%	21		41	2.4%	112,576	102,889	8.6%	68,434
2007	61	15	91.8%	19		35	0%	101,275	86,318	3.7%	94,663
2008	194	10	94.8%	51		67	1.5%	247,503	106,122	5.1%	97,196
2009	164	24	85.4%	30		38	0%	148,593	91,994	0.8%	88,771
2010	162	9	94.4%	29		55	1.8%	191,826	94,925	9.2%	92,033
2011	166	7	98.7%	28		49	1.1%	159,801	89,107	5.0%	84,726
2012	140	8	94.3%	29		42	0%	156,725	95,438	2.0%	90,684
2013	194	5	97.2%	38		44	0%	127,425	80,534	3.4%	71,679
2014	86	11	87.2%	15		29	0%	81,169	74,843	1.7%	85,999
2015	61	23	61.7%	15		22	9.1%	66	64,646	2.4%	60,211
2016	114	25	98.2%	33		35	0%	129,355	121,466	6.1%	74,830
2017	127	8	93.7%	46		55	0%	195,070	187,173	4.0%	76,320
2018	101	6	96.4	33		54	0%	152,334	144,107	5.4%	143,345
2019	98	12	91.5%	39		47	0%	128,677	116,987	9.1%	100,033
2020	126	17	87.2%	43		50	4.0%	176,910	88,519	11.1%	95,510
2021	118	32	94.9%	37		49	0%	94,949	91,385	3.9%	83,463
2022	233	37	84.1%	67		111	6.3%	105,587	96,348	2.9%	92,007
2023	158	17	88.2%	36	10	57	31.6%	116,033	*44,253	2.1%	To be released in Spring 2025
Mean	137	16	90.2%	32		50	2.8%	143869	100,395	5.6%	88,568