

# **Sustaining No-Net Impact for Upper Columbia Salmon and Steelhead: Northern Pikeminnow Control**

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# Outline

- Intro
  - History
  - Habitat Conservation Plan
- Predation Control Program
  - Program Overview
  - Northern pikeminnow removal
  - Survival Standards



CHELAN COUNTY  
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[www.chelanpud.org](http://www.chelanpud.org)

# History

- Why Pikeminnow?

- 1980s and early 1990s- Evaluations

- Vigg, S., Poe, T.P., Prendergast, L.A. and Hansel, H.C. (1991), Rates of Consumption of Juvenile Salmonids and Alternative Prey Fish by Northern Squawfish, Walleyes, Smallmouth Bass, and Channel Catfish in John Day Reservoir, Columbia River. Transactions of the American Fisheries Society, 120: 421-438. [https://doi-org.oregonstate.idm.oclc.org/10.1577/1548-8659\(1991\)120<0421:ROCOJS>2.3.CO;2](https://doi-org.oregonstate.idm.oclc.org/10.1577/1548-8659(1991)120<0421:ROCOJS>2.3.CO;2)
- Evaluation of the biological basis for a predator control program on northern squawfish (*Ptychocheilus oregonensis*) in the Columbia and Snake rivers RCP Beamesderfer, D L Ward, and A A Nigro Canadian Journal of Fisheries and Aquatic Sciences 1996 53:12, 2898-2908
- Tabor, R.A., Shively, R.S. and Poe, T.P. (1993), Predation on Juvenile Salmonids by Smallmouth Bass and Northern Squawfish in the Columbia River near Richland, Washington. North American Journal of Fisheries Management, 13: 831-838. [https://doi-org.oregonstate.idm.oclc.org/10.1577/1548-8675\(1993\)013<0831:POJSBS>2.3.CO;2](https://doi-org.oregonstate.idm.oclc.org/10.1577/1548-8675(1993)013<0831:POJSBS>2.3.CO;2)

- Mid -1990 and early 2000s- Implementation

- Hankin, D. G., Northwest Power Planning Council, & Richards, J. A. (2000). *The northern pikeminnow management program : an independent review of program justifications, performance, and cost-effectiveness*. [Northwest Power Planning Council]. <https://purl.fdlp.gov/GPO/LPS87899>
- Porter, R. G., Winther, E. C., & Fox, L. G. (2004). *Development of a System-Wide Predator Control Program: Stepwise Implementation of a Predation Index, Predator Control Fisheries, and Evaluation Plan in the Columbia River Basin; Northern Pikeminnow Management Program, 2002 Annual Report*. <https://doi.org/10.2172/842947>

# Chelan PUD History



- 1994
  - Pilot Program
    - USDA- ~10,000 Pikeminnow
- 1996
  - East Wenatchee Rotary Club Pikeminnow Derby
    - Avg. 1996-2004 ~2,340 Pikeminnow

# Habitat Conservation Plans

## Collaborative Approach to Plan Species Protection

- 50-year Agreements (signed 2002, approved 2004)
- Unanimous decision making
- Adaptive approach to achieving no-net impact for salmon and steelhead
- “Tools” used to achieve survival standards remain in implementation

***“The District will conduct control efforts for both pikeminnow and piscivorous bird populations.”***



CHELAN COUNTY

# Chelan Program Overview

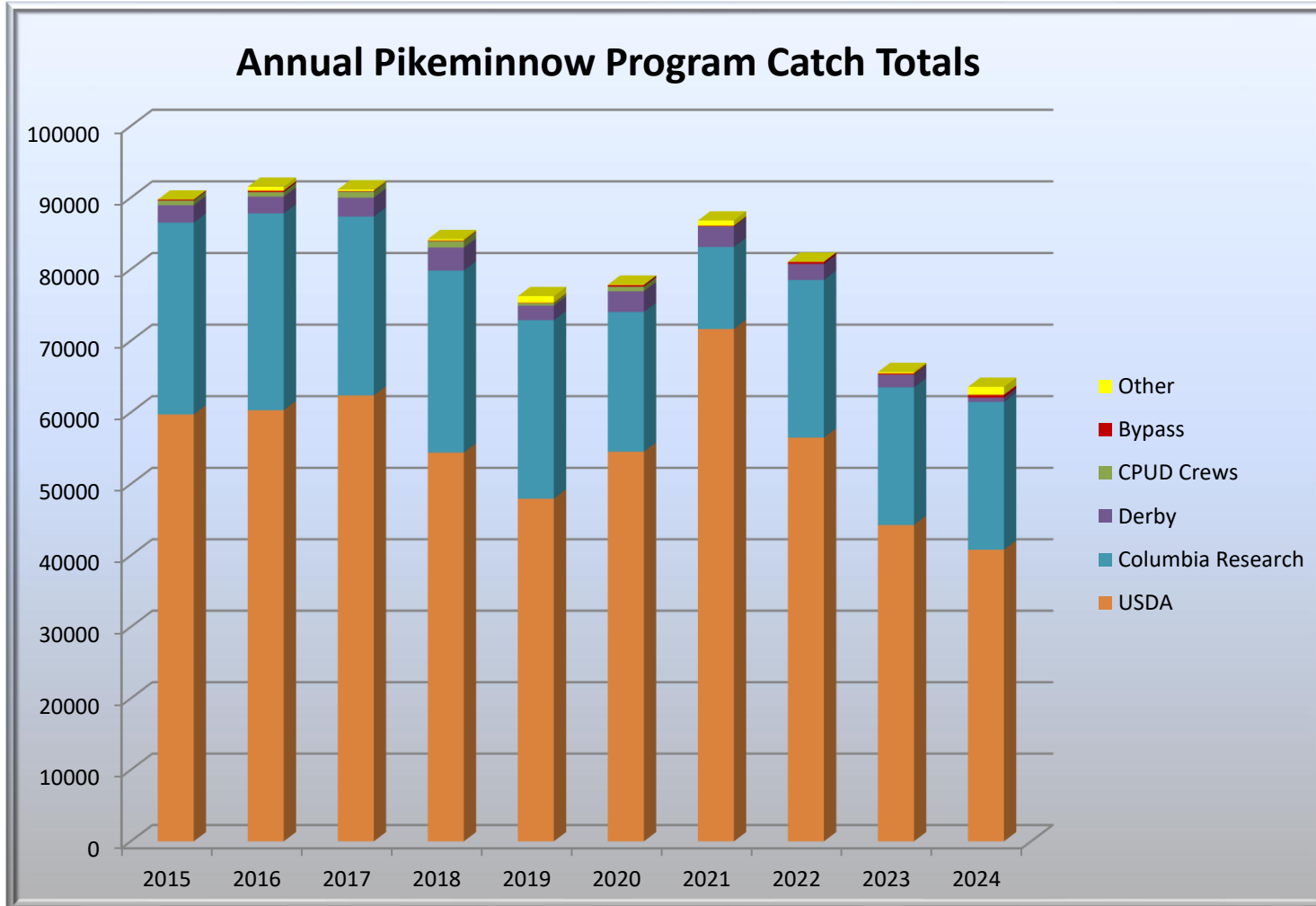
- **Removal Techniques**

- Hook and Line
- Long-line
- Fish Collectors
- Fish weirs

- **Partners**

- USDA
- Columbia Research
- East Wenatchee Rotary Club
- WDFW

# Removal Totals By Program



# Total Pikeminnow Removed

## Post-HCP

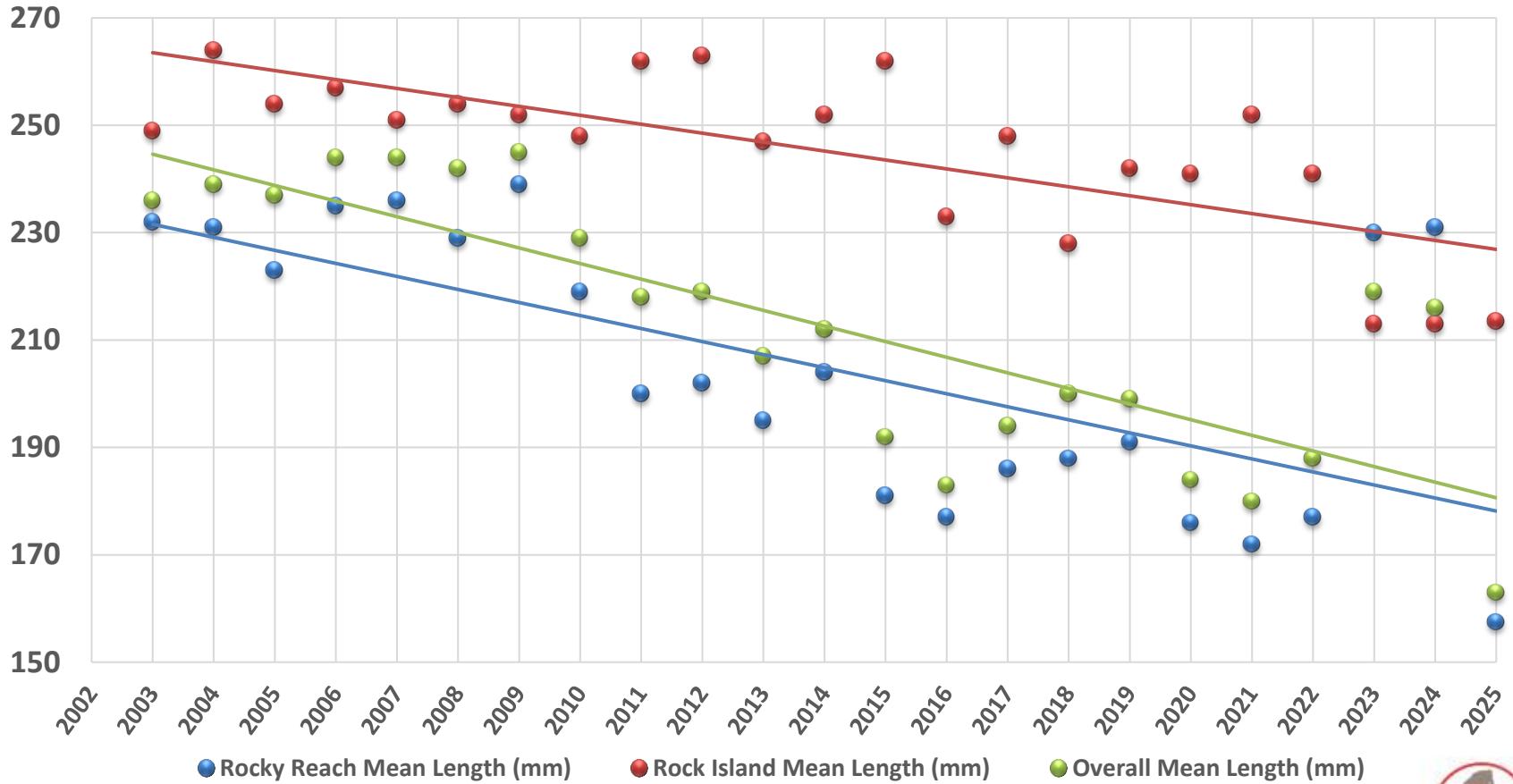
Year	USDA	CR	Derby	Traps	Misc.	TOTAL
2005	39,818	19,337	3,950			63,105
2006	40,747	22,564	3,445			66,756
2007	46,240	21,301	3,812	908	1,065	73,326
2008	42,158	21,509	4,474	5,023	453	73,617
2009	50,333	31,683	3,812	2,636	1,827	90,291
2010	47,354	31,620	5,027	113	1,187	85,291
2011	36,401	32,836	3,274	0	1,191	73,702
2012	36,118	29,526	2,894	0	1,231	69,769
2013	47,563	29,310	2,944	0	735	80,552
2014	44,826	28,561	2,563	0	378	76,328
2015	59,730	26,846	2,427	0	785	89,788
2016	60,327	27,472	2,347	536	840	91,522
2017	62,387	24,981	2,628	204	474	90,674
2018	54,410	25,412	3,209	207	980	84,218
2019	47,967	24,930	2,028	395	927	76,247
2020	54,526	19,520	2,887	47	871	77,851
2021	71,671	11,454	2,864	93	725	86,807
2022	56,493	22,020	2,246	21	282	81,062
2023	44,267	19,244	1,752	190	197	65,650
2024	40,817	20,589	625	1,114	292	63,437
<b>Totals</b>	<b>984,153</b>	<b>490,715</b>	<b>59,208</b>	<b>11,487</b>	<b>14,440</b>	<b>1,559,993</b>
<b>Average per year</b>	<b>49,208</b>	<b>24,536</b>	<b>2,960</b>	<b>574</b>	<b>722</b>	<b>78,000</b>

## Pre-HCP

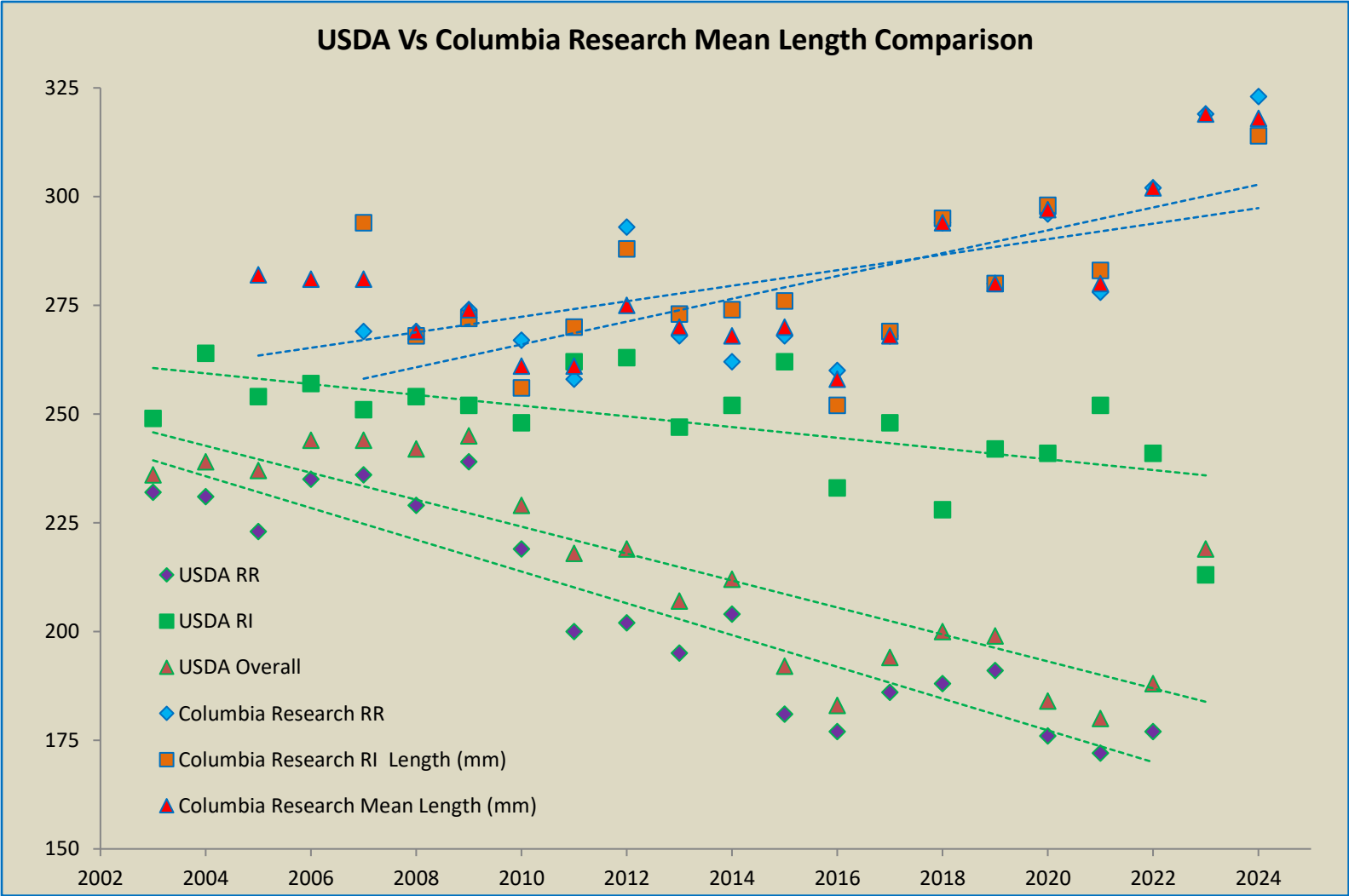
Year	USDA	CR	Derby	Traps	Misc.	TOTAL
1994	9,633					9,633
1995	17,620					17,620
1996	9,151		1,800			10,951
1997	9,186		2,240			11,426
1998	15,809		1,847			17,656
1999	20,523		2,294			22,817
2000	5,299		1,370			6,669
2001	6,085		1,601			7,686
2002	9,109		2,783			11,892
2003	19,754		2,568			22,322
2004	36,145		2,943			39,088
<b>Totals</b>	<b>158,314</b>	<b>0</b>	<b>19,446</b>	<b>0</b>	<b>0</b>	<b>177,760</b>
<b>Average per year</b>	<b>14,392</b>	<b>0</b>	<b>1,768</b>	<b>0</b>	<b>0</b>	<b>16,160</b>

# USDA Length Data

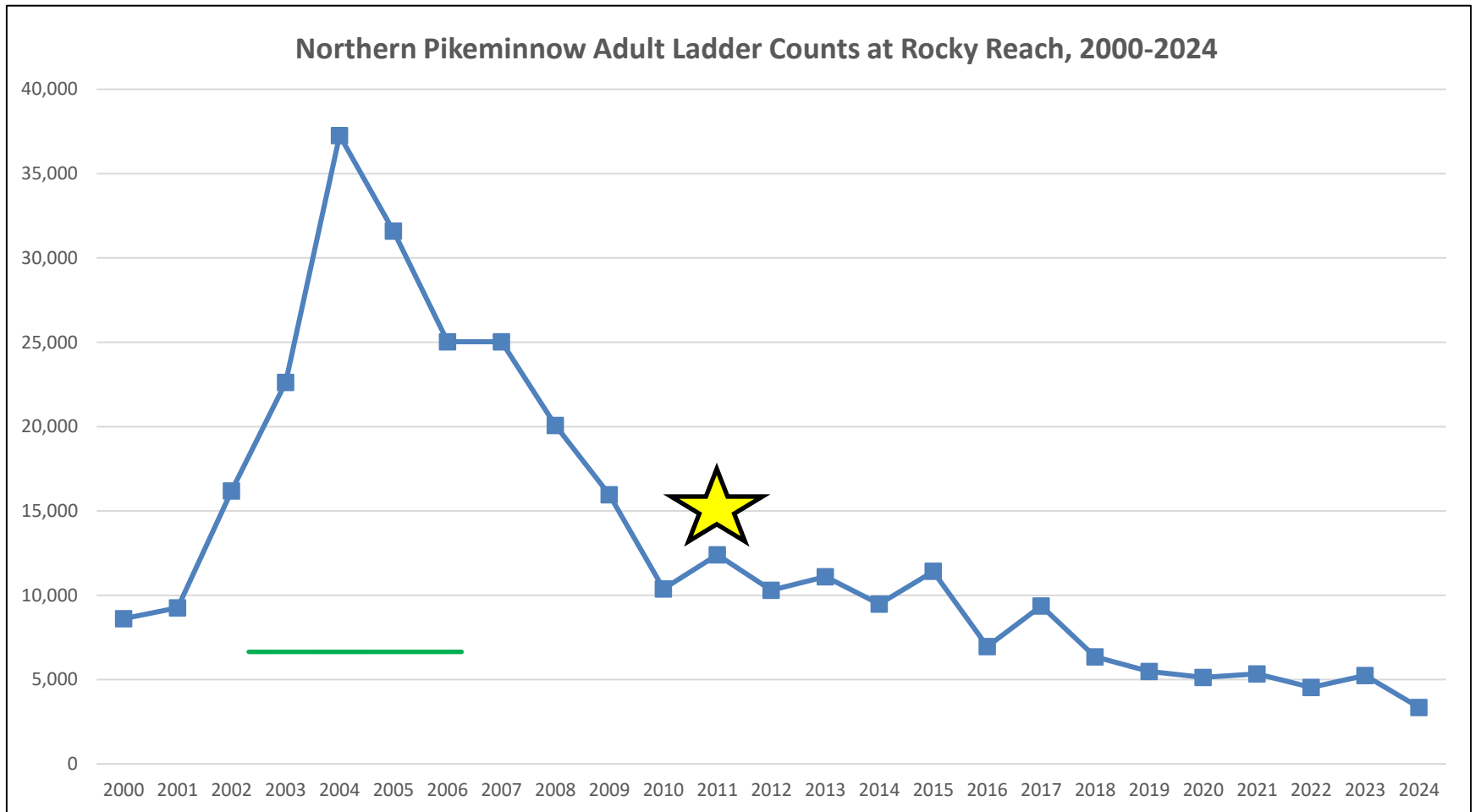
## USDA Pikeminnow Mean Lengths



# Length by Project



# Northern Pikeminnow Ladder Counts at Rocky Reach, 2000-2024



# Program Impacts

- Survival Metrics

Rocky Reach			
Species	Juvenile Survival	Combined Survival	Standard Achieved?
Steelhead	95.79	94.77	Yes
Spring Chinook	92.65	92.52	Yes
Sockeye	93.59	92.58	Yes
Rock Island			
Species	Juvenile Survival	Combined Survival	Standard Achieved?
Steelhead	96.75	96.08	Yes
Spring Chinook	93.93	93.85	Yes
Sockeye	93.27	91.75	Yes

# Summary

- Program continuance at current level
- Continued monitoring of numbers removed
- Pikeminnow key contributing factor to juvenile survival

