

Oregon Pinnipeds: Status, Trends, & Management

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Marine Mammal Program



Acknowledgments

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- Columbia River Inter-Tribal Fish Commission
- Northwest Power and Conservation Council
- Bonneville Power Administration

California sea lion (CSL)

Steller sea lion (SSL)

Harbor seal

South Jetty, Columbia River

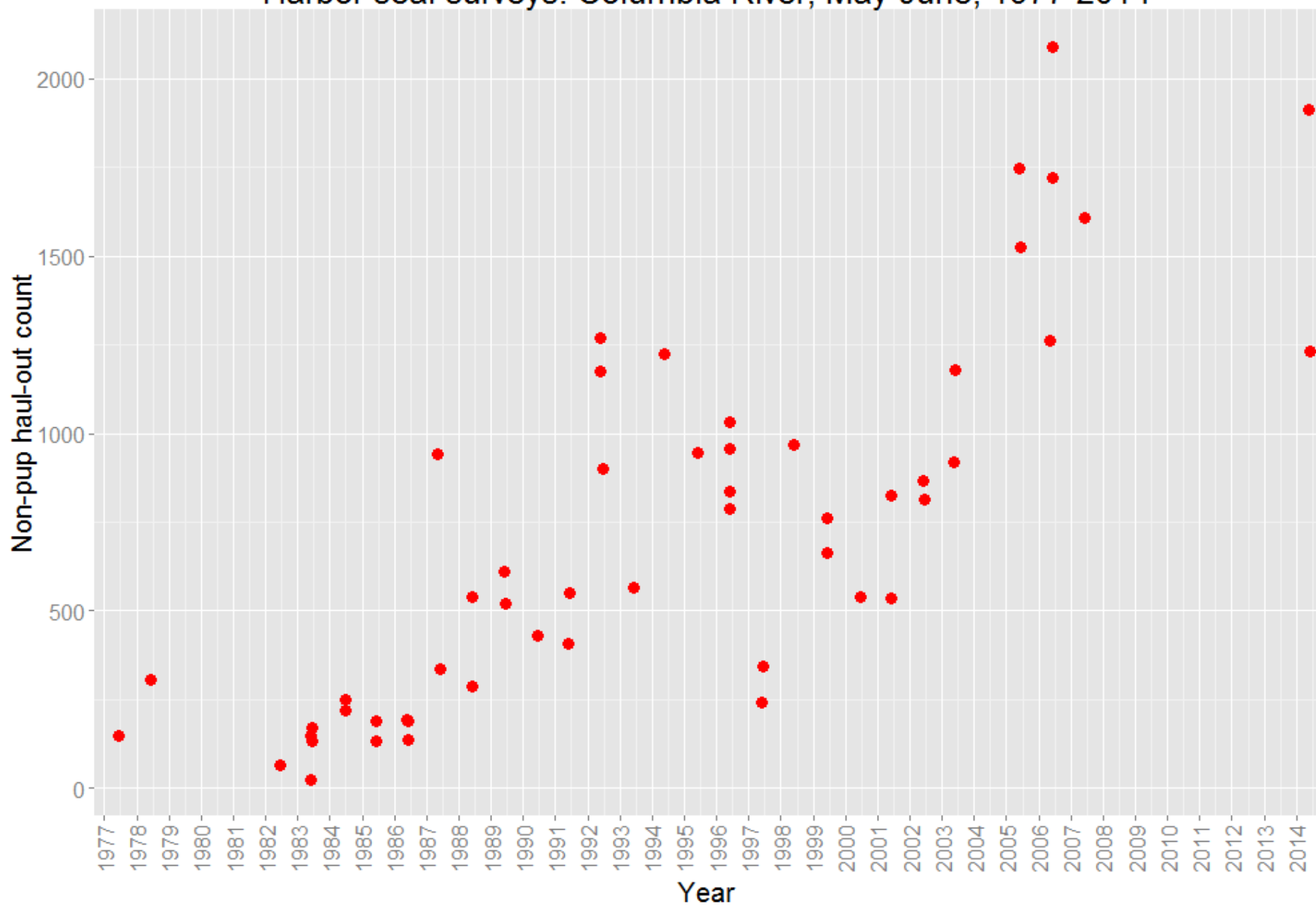


A photograph of several harbor seals resting on a sandy beach. The seals have mottled brown and white fur. One seal in the foreground is looking towards the left. The title 'Harbor seals' is overlaid in white text on the right side of the image.

Harbor seals

- Widely distributed North Atlantic and North Pacific.
- Five west coast U.S. stocks
- OR/WA coast stock:
 - Population stabilized 1990s but may have recently increased
 - 1999 estimate: ~25,000 seals (~10,000 in Oregon)
 - 2014 estimate pending

Harbor seal surveys: Columbia River, May-June, 1977-2014



A photograph of a Steller sea lion resting on a rocky shore. The sea lion is light brown with a white patch on its chest. It is looking towards the camera. The background shows dark, wet rocks and some green algae. The ocean is visible in the upper right corner.

Steller sea lions

- U.S. stocks (2): Western, Eastern
- Eastern stock:
 - ~63,000-78,000 sea lions
 - Growth rate: 3%-5% per year
 - Delisted as "threatened" under ESA in 2013
- OR/WA population:
 - ~7,900 total (~1,500 pups)

Steller sea lions

- Columbia River – typical/recent single-day spring counts
 - South Jetty: ~100
 - Phoca Rock/Bonneville Dam: ~40
 - Willamette Falls: ~2
- Observed predation Bonneville Dam, 2005-2014
 - Salmonids: ~8,000
 - White sturgeon: >12,000





California sea lions

- Five stocks (4 in Mexico)
- U.S. stock
 - ~300,000 sea lions
 - Growth rate: 5% per year (except El Nino years)
- Pacific Northwest
 - Seasonal migrants (fall, winter, spring)
 - Nearly all sub-adult and adult males

California sea lions

- Columbia River – “typical/recent” single-day spring counts
 - South Jetty: ~50
 - East Mooring Basin: ~250 (pre-2013)
 - Bonneville Dam: ~25
 - The Dalles: ~3
 - Willamette Falls: ~20



Historic/prehistoric occurrence of pinnipeds in the lower Columbia River

- Archaeological evidence shows harbor seals present in lower Columbia River up to 10,000 years ago; no similar evidence for other pinnipeds.
- Harbor seals observed to Celilo Falls during 19th (e.g., Lewis & Clark) and early 20th centuries.
- Steller sea lion observations at river-km 70 in 1814 & river-km 150 in 1930s.
- *No history of CSLs in river.*





Recent history

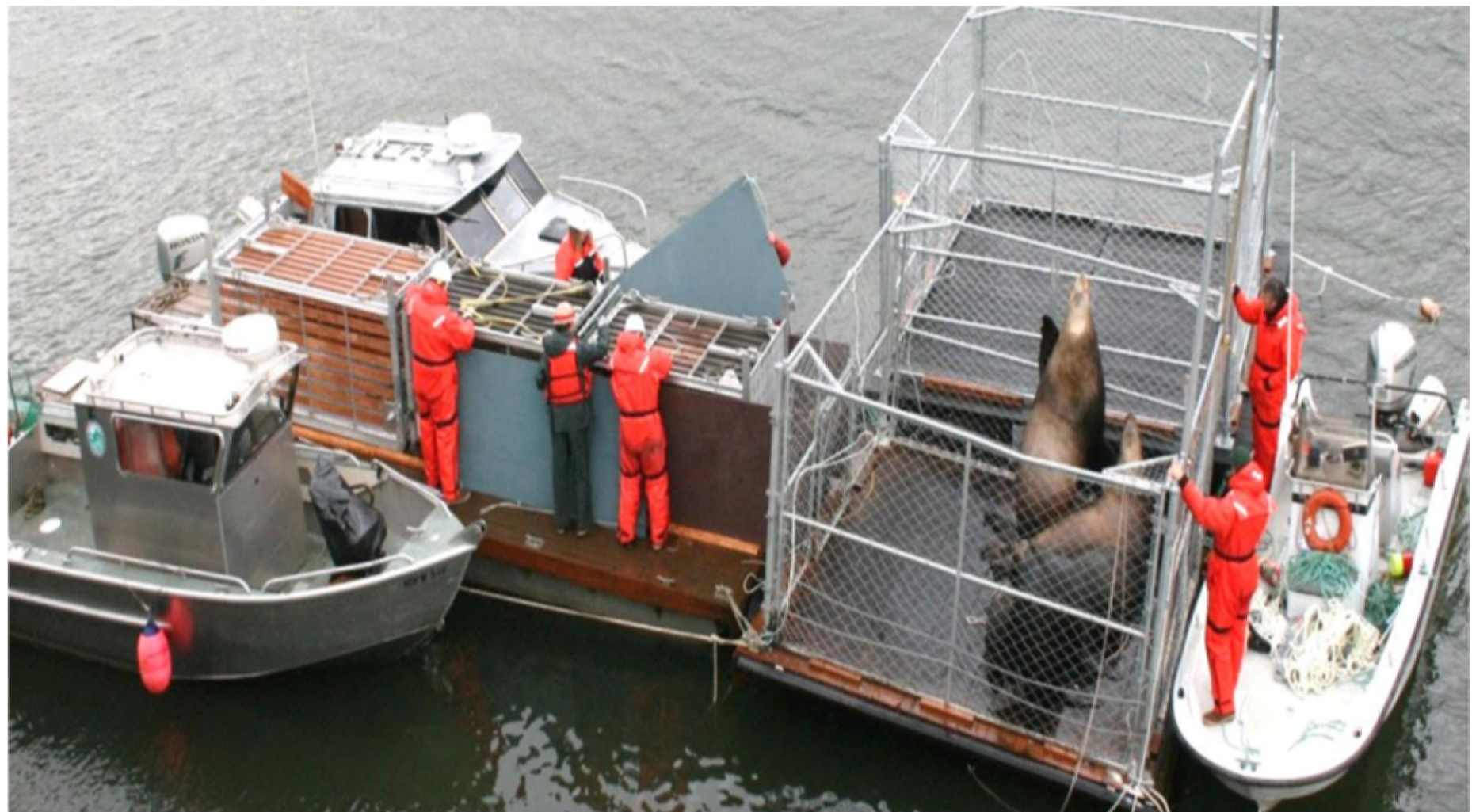
- 1970s
 - Marine Mammal Protection Act (MMPA) of 1972
- 1980s
 - CSLs begin occurring regularly in the lower Columbia River
- 1990s
 - CSLs start occurring regularly at Willamette Falls
 - CSL branding program starts in Astoria 1997
 - ESA listings of Columbia River salmonids

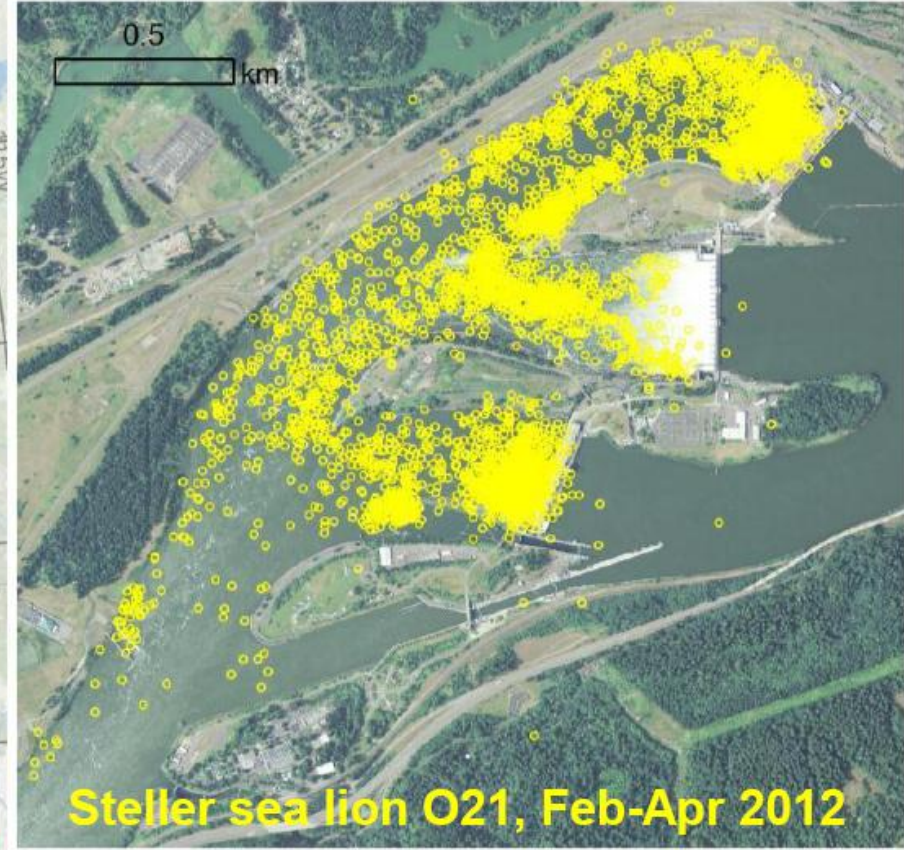


Recent history

- 2000s
 - CSLs occurring regularly at Bonneville Dam 2001
 - Monitoring at dam starts 2002
 - SSLs occurring regularly at Bonneville Dam 2006
 - Commission directs agency to apply for MMPA Section 120 removal authority 2006 (with WDFW and IDFG)
 - Section 120 authority granted 2008
 - CSL & SSL begin increasing at Willamette Falls







Harbor seals

>6000 on Desdemona Sands, 2/11/2015

Photo credit: S. Jeffries, WDFW



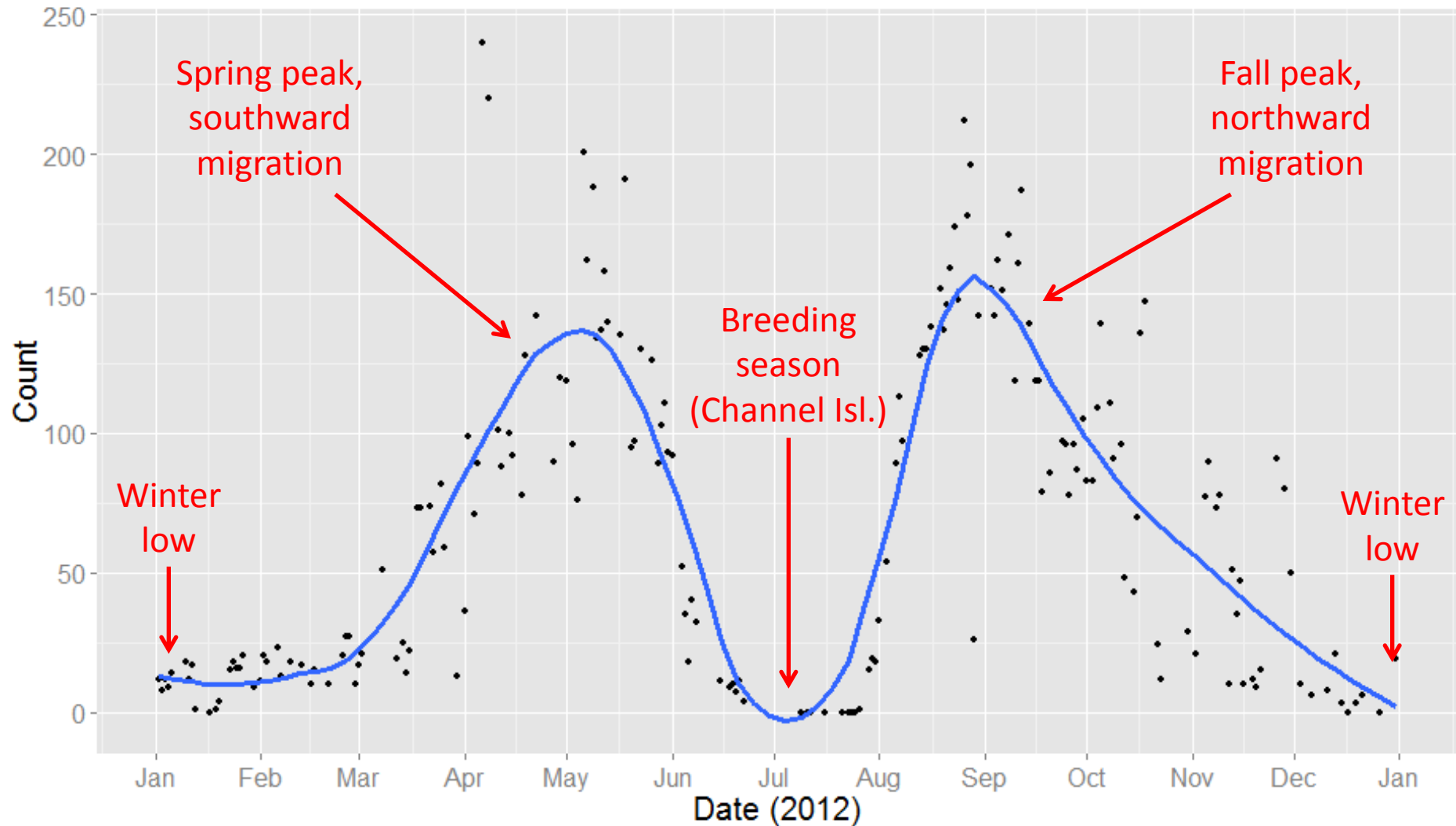


California sea lions

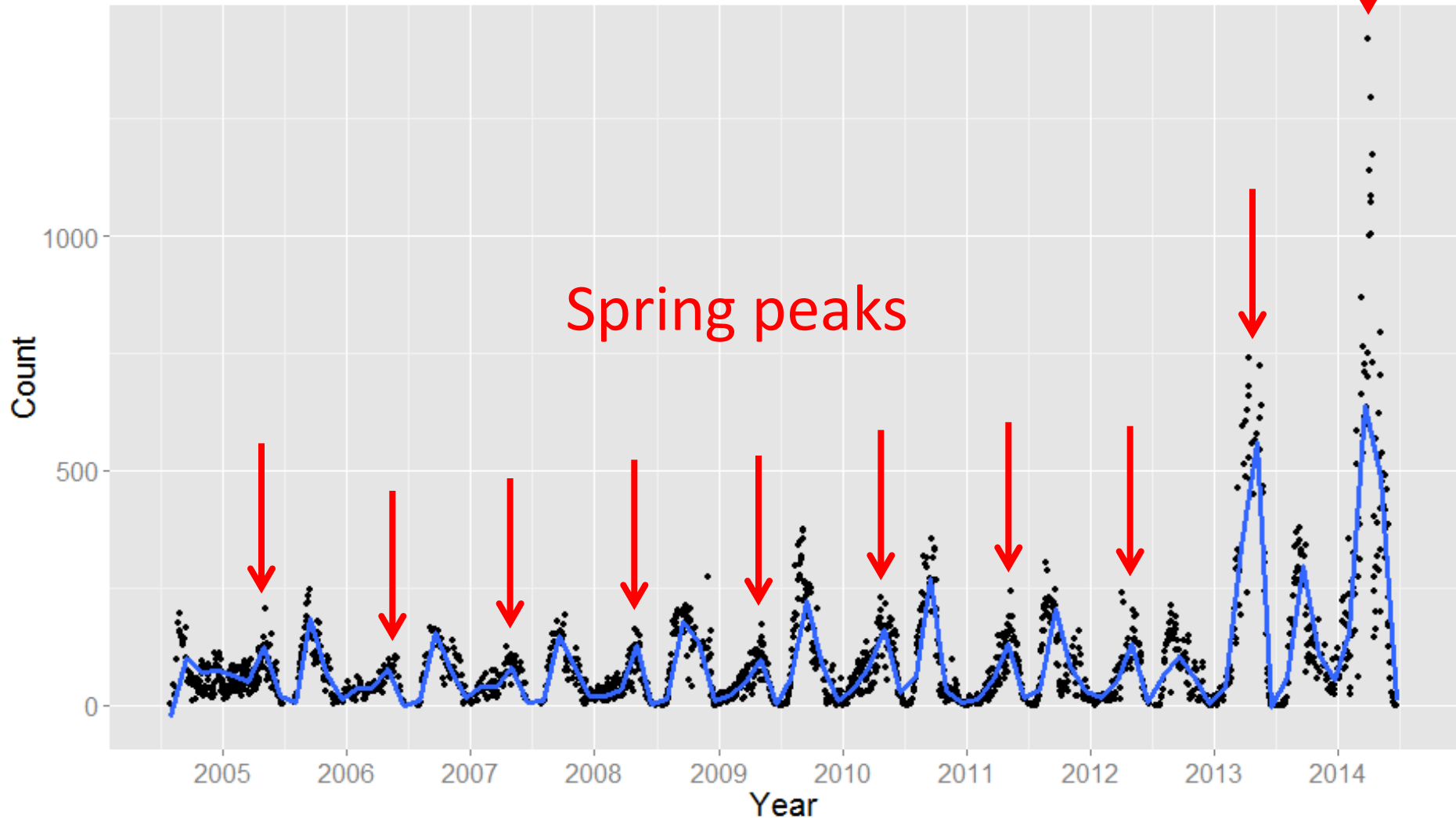
>1500 at East Mooring Basin, Astoria, 2/11/2015

Photo credit: S. Jeffries, WDFW

"Normal" pattern of CSL occurrence, East Mooring Basin, Astoria



CSL counts, Astoria, fall 2004 – spring 2014



Source: ODFW, unpublished data

California and Steller sea lions

Several 'pods' of 100-200 each, RM 24 to RM 68,
2/20/2015

Photo credit: S. Jeffries, WDFW



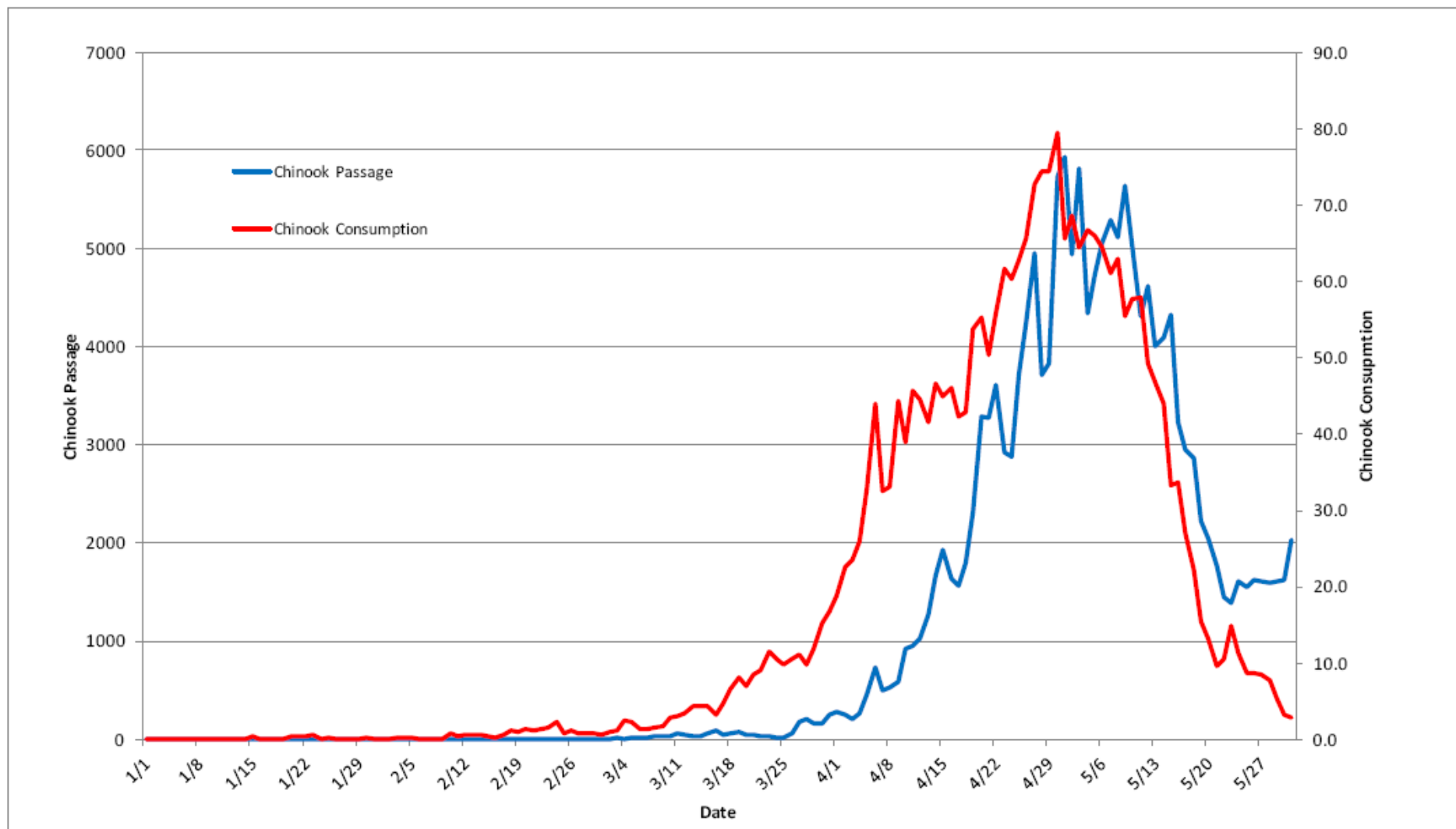


Figure 4. Mean daily Chinook consumption by CSL and mean daily Chinook passage at Bonneville Dam by date, 2002-2014.

Source: USACE, Pinniped 2014 Final Report

California sea lion feeding rates



- Maximum USACE-observed consumption:
 - 12 salmon/day
 - 198 salmon/season
- Prey requirements at dam based on energetics model: 3 salmon/day
- Observed predation at Bonneville Dam, 2002-2014: 40,000+ salmonids

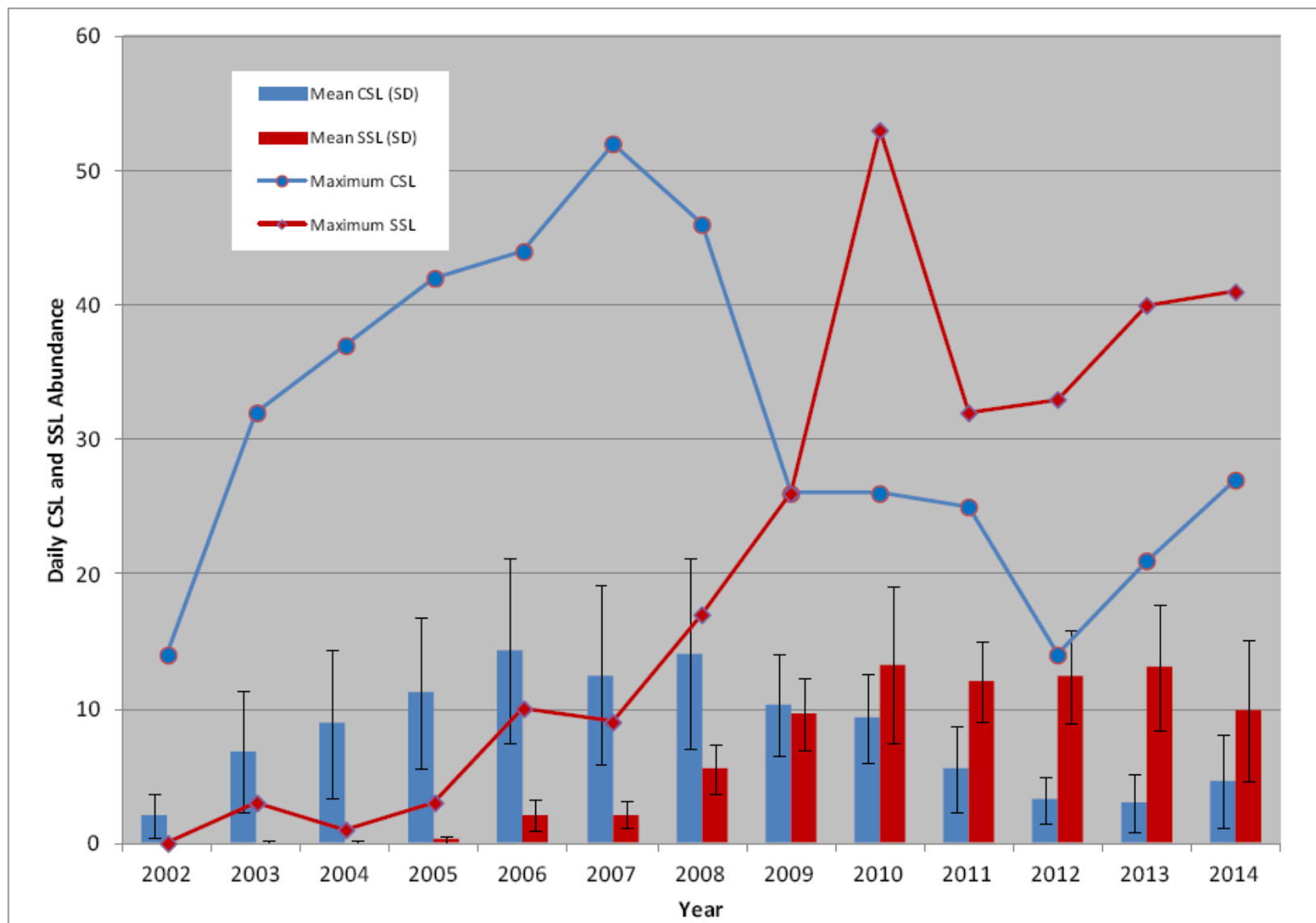


Figure 13. Mean, standard deviation, and maximum daily estimated number of CSL and SSL present at Bonneville Dam between January 1 and May 31, 2002 to 2014.

California sea lion removals

Year	Captivity	Accidental mortality	Euthanized	Total
2008	6	5		11
2009	4		11	15
2010			14	14
2011*			1	1
2012	1		12	13
2013	2		2	4
2014			15	15
Total	13	5	55	73

*On-going litigation suspends removal program

Willamette Falls





Willamette Falls

- Monitoring: 1995-2003, 2009-2013, 2014-
- Hazing by ODFW: 2010, 2012-2013
- 2014 results (March-May)
 - At least 27 CSLs, 2 SSLs, 1 HS
 - 14 CSLs seen previous years at WF or Bonneville
 - 5 CSLs on removal list
 - 3,700 (+/- 400) salmonids killed
 - 13% (+/- 3%) of listed winter steelhead
 - 8% (+/- 2%) of listed spring Chinook



- 2015 preliminary results (February-April)
 - At least 33 CSLs, 3 SSLs
 - Majority seen previous years at WF or Bonneville
 - Four on removal list
 - Estimated salmonid predation thus far: ~3000
 - Preparations for trapping & marking in 2016

2015 and beyond

- Astoria
 - Continue sea lion marking project
 - Key to understanding affects of growing sea lion numbers on salmonids, other fish resources
- Columbia River
 - Monitor pinniped abundance, distribution, and foraging habits

2015 and beyond

- Bonneville Dam
 - Continue predator removals 2015 and 2016
 - Request 5-year extension of NMFS LOA – 2021
 - Evaluate need for Steller sea lion management
- Willamette Falls
 - Continue monitoring of predation 2015, 2016...
 - Evaluate predation affects on T&E salmonids



Questions?

