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March 3, 2026

MEMORANDUM

TO: Council Members

FROM: Kate Self, Windy Schoby

SUBJECT: Comprehensive update on sea lion predation and management in the Columbia Basin

BACKGROUND:

Presenter: Donella Miller, CRITFC, Fishery Science Department Manager
Doug Hatch, CRITFC, Fishery Science Department Deputy Manager
Robert Anderson, NOAA, Marine Biologist
Mike Brown, ODFW, Marine Mammal Program Leader
Shay Valentine, ODFW, Columbia River Project Leader
Casey Clark, WDFW, Lead Marine Mammal Researcher
John Edwards, WDFW, Columbia River Sea Lion Biologist
Sarah Maher, IDFG, Columbia River Coordinator

Summary: Members of the team implementing the joint permit authorizing removal of sea lions from Columbia River waters will provide an update to the Council on sea lion predation and management in the Columbia Basin. Robert Anderson from National Oceanic and Atmospheric Association (NOAA) will provide an update on sea lion population trends and implications for the 120f permit. Donella Miller and Doug Hatch of the Columbia River Inter-Tribal Fish Commission (CRITFC) will provide a brief history on sea lion predation on salmon, steelhead and white sturgeon in the Columbia Basin and management actions to date, including implementation progress and challenges. They will discuss some proposed changes to the Marine Mammal Protection Act (MMPA) and future outlooks for the

Columbia Basin. Other team members – Mike Brown (ODFW), Shay Valentine (ODFW), Casey Clark (WDFW), John Edwards (WDFW), and Sarah Maher (IDFG) - will be available for questions.

Relevance: This topic is related to one of the seven emerging program priority areas in the [Investment Strategy](#) of the 2014 Fish and Wildlife Program – “preserving program effectiveness by supporting expanded management of predators”. This priority was maintained in the 2020 addendum to the Program. Our continued understanding of in-river sea lion populations is important as we consider management for fish and pinniped interactions.

Workplan: Fish and Wildlife Division preliminary work plan 2026; Program Implementation; and Pursue implementation of 2014 Program and 2020 Program Addendum, including Council Program priorities.

Background: In 1994, Congress amended the Marine Mammal Protection Act (MMPA), adding section 120, which established a process for authorizing the intentional lethal take of individually identifiable pinnipeds that have a significant negative impact on the decline or recovery of salmonid fishery stocks (16 USC § 1389).

In March 2008, fish and wildlife managers in the Columbia River Basin received federal authorization under Section 120 of the Marine Mammal Protection Act (MMPA) to remove sea lions that have been observed preying on salmon and steelhead below Bonneville Dam. The federal authorization allowed the fish and wildlife managers to use lethal measures to remove sea lions that meet specific criteria¹. The authorization is guided by the Pinniped-Fishery Interaction Task Force (Task Force). The Task Force is composed of NOAA Fisheries staff, independent scientists, representatives from affected conservation and fishing communities, tribes, states, and others.

Multiple revisions to Section 120 of the Marine Mammal Protection Act since 2008 have allowed for lethal removal of certain individuals. In 2020, PL 115-329 was passed into law that allowed government agencies to lethally remove Steller and California Sea Lions in select locations of the Columbia and Willamette Rivers. Under this new law, the states of Washington, Oregon, and Idaho, and the Nez Perce Tribe, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs Reservation of Oregon, and the Confederated Tribes and Bands of the Yakama Nation are eligible to apply for a permit from NOAA Fisheries to remove predatory sea lions on the Columbia River and any Columbia River tributary that is salmon-bearing (Doug Hatch, CRITFC, personal communication).

¹ Removal of problem sea lions has proven to be the most effective means of protecting fish from predation. While exclusion gates keep sea lions out of the fishways, other non-lethal deterrents such as pyrotechnics and rubber buckshot fired at them have only a temporary effect.

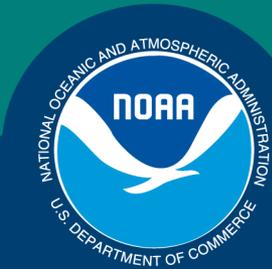
In December of 2025 the House Committee on Natural Resources held a hearing titled “Sea Lion Predation in the Pacific Northwest” hosted by Chairman Bruce Westerman (R-AR). Members from CRITFC, Northwest Indian Fisheries Commission (NWIFC), the Nisqually Indian Tribe, NOAA, and the American Sportfishing Association provided testimony found [here](#). The hearing provided a regional perspective on how growing sea lion populations are contributing to a diverse suite of conflicts in the Pacific Northwest. A bi-partisan group asked questions about potential policy solutions to adaptively manage or expand current management efforts into the future. CRITFC was a leader in helping the committee understand lessons learned in the Columbia Basin and what they are asking for in the future.

Comprehensive information on the 120 Pinniped Removal Program can be found [here](#) and a detailed chronology of events of the MMPA Section 120 Pinniped Removal on the Columbia River can be found [here](#). The 120(f) management area in the mainstem extends from the I205 bridge to McNary Dam although there has never been a confirmed sea lion upstream of The Dalles Dam.

More Info:

- Council Document [Program Performance: Predator Management 1980-2022](#), 2025
- Recording of House Committee on Natural Resources December 2025 hearing on [Sea Lion Predation in the Pacific Northwest](#) and link to [all documentation](#)
- USACE [2024 Evaluation of Pinniped Predation on Adult Salmonids and Other Fish in the Bonneville Dam Tailrace](#)
- Council Presentation [Report on Sea Lion Predation and Management in the Columbia Basin](#), 2022
- [Pinniped-Fishery Interaction Task Force, Bonneville Dam](#) – publications 2007 to 2022
- Marine Mammal Protection Act [Section 120 Pinniped Removal Program: Columbia and Willamette River](#)
- Marine Mammal Protection Act Section 120 Pinniped Removal on the Columbia River: [Chronology of Events 2000-2020](#)
- Council Topic [Efforts to Reduce Sea Lion Predation in the Basin Are Saving Salmon](#), 2022
- Council Topic [Stellar Sea Lions at Bonneville](#), 2020
- ISAB [Review of Predation Impacts and Management Effectiveness in the Columbia Basin](#), 2019
- Council Topic [Article on Sea Lions](#), 2018

Science, Service, Stewardship



Pinniped Predation in the Columbia River Basin

Northwest Power and Conservation Council
March 2026



Photo Credit: Butch Smith

Robert Anderson
National Marine Fisheries Service
West Coast Region

NOAA
FISHERIES
SERVICE

Outline

- Marine Mammal Protection Act
 - Goals and Definitions
- MMPA Lethal Take Options
 - MMPA §120(f) Authorizations
- Population Status of California sea lions and Steller sea lions
 - Stock Assessment Reports
- Adaptive Management

Marine Mammal Protection Act

The MMPA prohibits “taking” (e.g., harassment, injury, hunting, hunt, capture, or kill or to attempt to do so) of marine mammals unless exempted by the MMPA or authorized under a permit or authorization.

Explicit Goals of the MMPA:

- Maintain stocks at their Optimum Sustainable Population (OSP) level
- Restore depleted stocks to OSP
- Reduce incidental mortality and serious injury to “insignificant levels approaching a zero mortality and serious injury rate”

Implicit Goal: Minimize interference with commercial fishing.

Definitions

Population stock or **stock** means a group of marine mammals of the same species or smaller taxa in a common spatial arrangement, that interbreed when mature.

The term **strategic stock** means a marine mammal stock:

- (A) for which the level of direct human-caused mortality exceeds the potential biological removal level;
 - (B) ...is declining and is likely to be listed as a threatened species under the ESA...within the foreseeable future; or
 - (C) which is listed as a threatened species or endangered species under the ESA... or is designated as **depleted**
- A “**depleted**” stock is determined to be below its optimum sustainable population or is listed as an endangered or threatened species under the ESA.

Definitions

- **Optimal sustainable population (OSP)** is defined by the MMPA as a range of population abundance, bounded on the lower end by the maximum net productivity level (MNPL), and the upper end by carry capacity (K).
- **Maximum Net Productivity Level (MNPL)** ... is population size expected to produce the greatest net annual increment (increase) in population numbers resulting from additions due to reproduction less losses due to natural mortality.
- **Potential Biological Removal (PBR)** means the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population.
 - Purpose: To monitor the impact of human activities—such as commercial fishing (bycatch), vessel strikes, entanglements (fishing gear and marine debris), military sonar—on marine mammal stocks and ensure their long-term health.

MMPA Lethal Take Options

- Section 119 – Marine Mammal Cooperation Agreements in Alaska ... authority to NMFS and USFWS to enter into cooperative agreements with Alaska Native Organizations to conserve marine mammals and provide co-management of subsistence use by Alaska Natives.
- Section 101(a)(3)(A) – Request a waiver of the take moratorium and request for direct take
 - Rule-Making [Section 103]
 - Take Permit [Section 104]
- Section 109 – Federal Cooperation with States – Transfer of Management Authority by Secretary to a state
- **Pinniped Removal Authority***
 - Section 120 – Intentional lethal taking of individually identifiable pinnipeds which are having a significant negative impact on the decline/recovery of salmonid fishery stocks
 - Section 120(f) – Temporary Marine Mammal Removal Authority on the Waters of the Columbia River or its Tributaries - Intentional lethal taking of pinnipeds within the 120(f) geographic area
- Section 109(h) [Taking of marine mammals as part of official duties]
 - Section 109(h) of the MMPA authorizes federal, state, and local government officials to take marine mammals—including lethal removal—if it is necessary for the protection of human welfare, public health, or to dispose of dead/dying animals. This authority is independent and allows officials to act quickly to manage "nuisance" animals without prior federal permit.

*** Section 120 of the MMPA is not used to manage sea lion stock abundance – it is used to manage predation at specific locations to support recovery of listed salmonid fishery stocks.**

Summary MMPA Authorizations in the Columbia River Basin

- Since 2008, NOAA has issued 8 authorizations pursuant to sections 120 and 120(f) of the MMPA to intentionally take predatory sea lions in the Columbia River Basin.
- Five of the authorizations were issued to the states of Oregon, Washington, and Idaho at Bonneville Dam; one authorization was issued to the state of Oregon at Willamette Falls; and two MMPA Section 120(f) permits have been issued to the Eligible Entities.
- Through these 8 authorizations issued under the MMPA in the Columbia River Basin since 2008, a total of 505 sea lions have been removed (389 CSL and 116 SSL), plus an additional 12 sea lions under ODFW's MMPA Section 109(h) authority.
 - These removals have been estimated to have saved (fish that otherwise would have been lost to sea lion predation) more than 110,000 adult salmonids from sea lion predation since the inception of the pinniped removal programs in the Columbia River Basin.
- While these MMPA authorizations to intentionally take predatory sea lions have helped reduce predation on salmonids at a small scale and in certain areas, they not been particularly effective at achieving the overall goal of balancing the requirements of the ESA and MMPA.

California Sea lion (*Zalophus californianus*): U.S. Stock

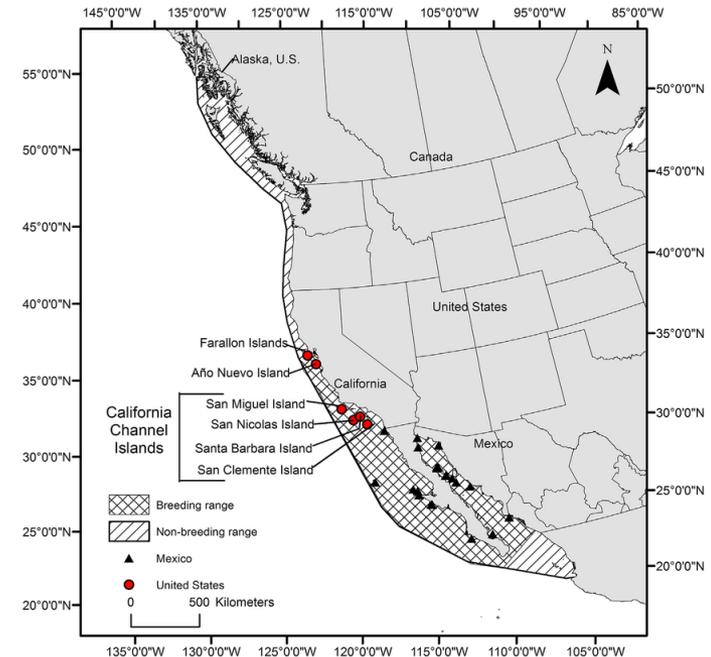
Estimated population size: 257,606 (Caretta et al. 2024).

Potential Biological Removal (PBR) level for this stock is 14,011 sea lions per year.

MNPL for California sea lions is ~180,000 and K is ~ 280,000, so the current estimated abundance of 257,606 is within the OSP range.



Max size: 5.9 ft (F) – 7.9 ft (M)
Weight: 220 lbs. (F) – 772 lbs. (M)



Range of male and female California sea lions and locations of breeding areas in the United States (circles) and Mexico (triangles).

Steller Sea lion (*Eumetopias jubatus*): Eastern Stock

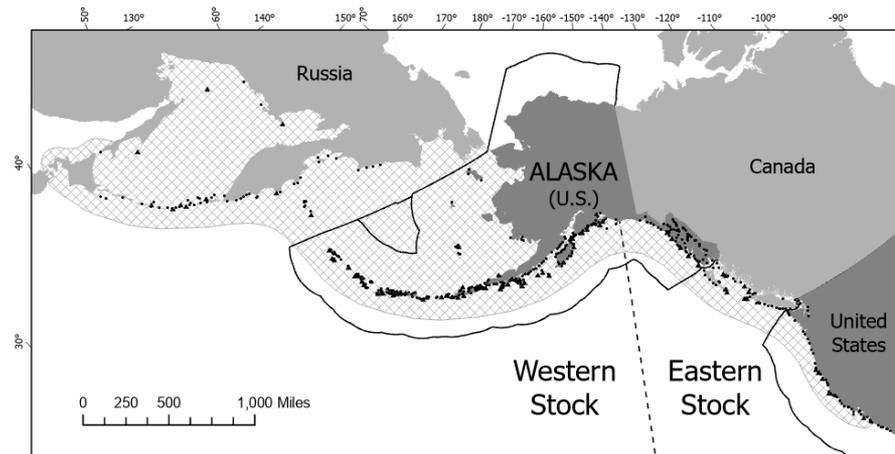
Estimated population size: 77,149 (Young et al. 2024)

Potential Biological Removal (PBR) level for this stock is 2,178 sea lions per year.

There are no estimates of the MNPL for Steller sea lions; therefore, the maximum theoretical net productivity rate for pinnipeds of 12% is being used for this stock. This stock is likely within its range of its OSP; however, no determination of its status relative to OSP has been made (Young et al. 2024).



Max size: 9.5 ft (F) – 10.7 ft (M)
Weight: 772 lbs. (F) – 2469 lbs. (M)



Generalized distribution (crosshatched area) of Steller sea lions in the North Pacific and major U.S. haulouts and rookeries as well as active Asian and Canadian (British Columbia) haulouts and rookeries. A black dashed line (144°W) indicates the stock boundary, and a black line delineates the U.S. Exclusive Economic Zone.

The Stock Assessment Cycle Stock Assessment Reports (SARs)

SARs are *reviewed*...

- ... annually for strategic stocks
- ... every 3 years for non-strategic stocks

SARs are *revised*...

- ... if there is substantive new information



At the time of our most recent review of the U.S. California sea lion stock SAR and the Eastern Steller sea lion stock SAR in spring of 2025, there was not sufficient information to warrant a revision to the SARs for these stocks.

Adaptive Management

- Need a long-term funding strategy to scale-up the pinniped removal program.
- Need to implement the removal program in the tributaries within the 120(f) geographic area.
- Need to implement a long-term management strategy to prevent the future recruitment of sea lions into the 120(f) geographic area, such as establishing a down-river “migration barrier,” to prevent sea lions from migrating into the 120(f) geographic area.
- Need to continue to explore opportunities to displace and-or minimize the use of manmade haul outs by sea lions throughout the lower Columbia River.
- Need for greater regulatory flexibility to directly, and more effectively, manage pinniped predation and promote salmon and steelhead recovery.

Thank You





Pinniped Predation in the Columbia River

Columbia River Inter-Tribal Fish Commission

- **Doug Hatch**, Senior Scientist
- **Donella Miller**, Fishery Science Department Manager

Northwest Power and Conservation Council, March 2026



photo: L. E. Baskow

Presentation Outline



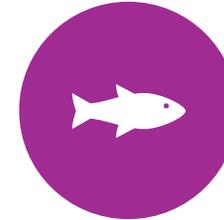
MARINE MAMMAL
PROTECTION ACT



STATUS AND HISTORY
OF CALIFORNIA AND
STELLER SEA LIONS.



HOW BIG IS THE SEA
LION PROBLEM?



SEA LION IMPACTS
ON SALMON



WHERE DO THE
IMPACTS OCCUR?



WHAT ARE THE
CONTROL ACTIONS?



WILL CONTROL
ACTIONS WORK?



BROADER ACTION:
AMEND THE MMPA

Marine Mammal Protection Act

- Enacted in **1972**.
- Established a national policy to prevent marine mammal species and population stocks from **declining beyond the point where they ceased to be significant functioning elements of the ecosystem**.
- The first US act to call specifically for an **ecosystem approach** to wildlife management.



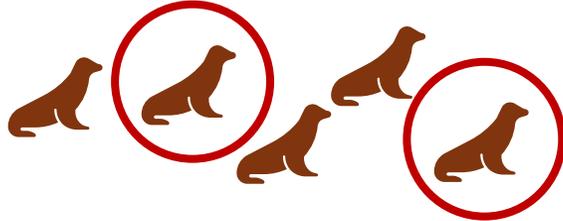
Marine Mammal Protection Act

- Designed to address extinction threat.
- No population management provisions and no “delisting” process like ESA.
- Amended in 1994. §120 limited take of individual sea lions having a significant negative impact on ESA listed salmonids. Implemented at Ballard Locks, Bonneville, Willamette Falls.
- Amended in 2018. §120(f) recognizes tribal co-management, allows area-based management of sea lions in Columbia River.



MMPA Amendment Comparison

§120



Individual Sea Lion-based

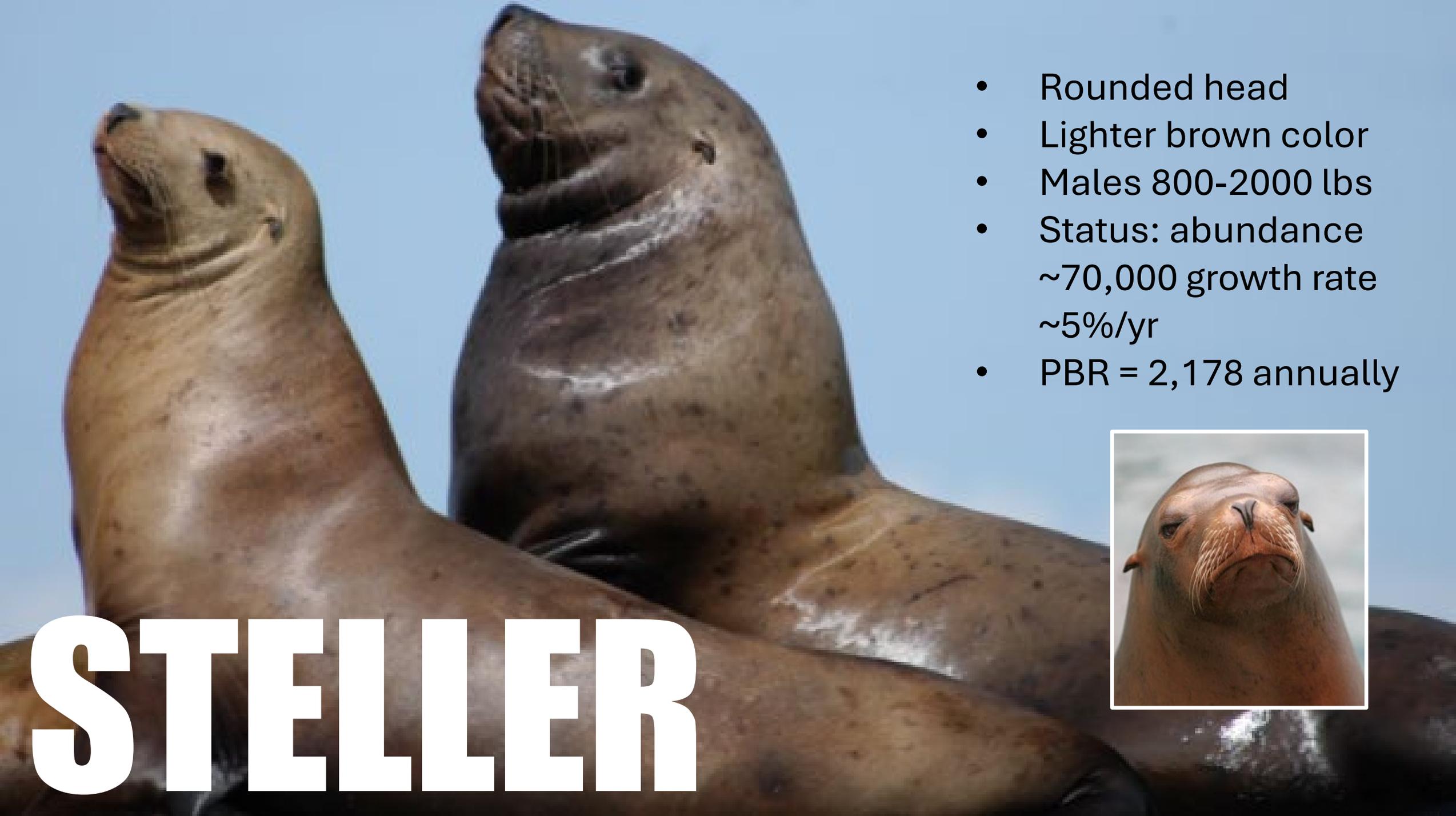
- Oregon Washington 2008-2020
- California sea lions only
- Separate authorizations for Bonneville Dam and Willamette Falls
- Must be individually identifiable & having a significant negative impact on listed salmonids – this required trapping, marking, and releasing the animal
- Individual sea lions observed feeding on a salmonid and/or present for a certain number of days

§120(f)

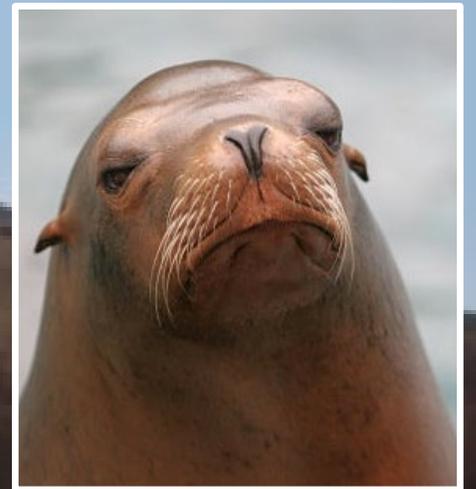


Area-based

- PL115-329 signed in 2018; permit issued 2020; permit extended until 2030
- Eligible Entities (OR, WA, ID, NPT, WS, YN, CTUIR, CRITFC, Willamette Committee)
- Any sea lion from Columbia River Mile 112 and River Mile 292; and,
- Columbia River Basin tributaries that include spawning habitat of threatened or endangered salmon or steelhead.
- **California AND Steller sea lions**
- **Trap, collect, chemically euthanize OR Dart, collect, chemically euthanize are only removal methods allowed.**



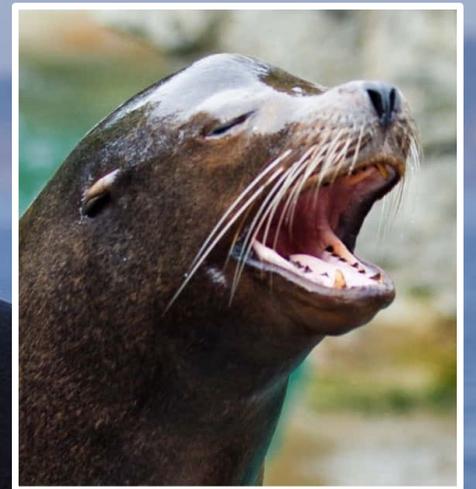
- Rounded head
- Lighter brown color
- Males 800-2000 lbs
- Status: abundance
~70,000 growth rate
~5%/yr
- PBR = 2,178 annually



STELLER



- Point on head
- Darker brown color
- Males 500-1200 lbs
- Status = near carrying capacity
- PBR = 14,011 annually



CALIFORNIA

A large colony of sea lions is gathered on a wooden pier structure over the water. The sea lions are of various shades of brown and black, some resting on the pier and others in the water. The pier has several vertical wooden posts. The water is calm and reflects the light. The overall scene is a busy, natural habitat for the sea lions.

How many sea lions
are around?

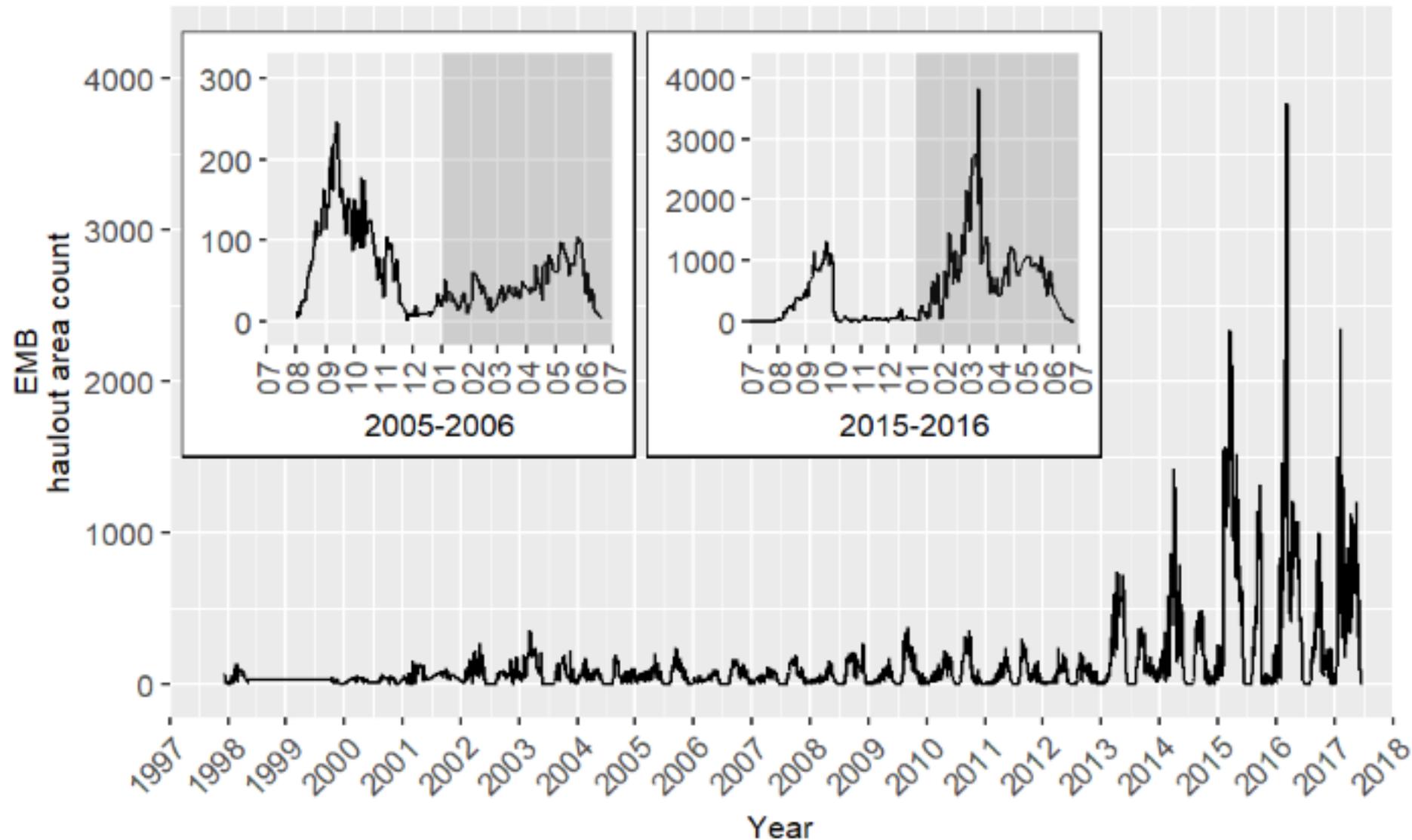


Figure 2. Time series of California sea lion haul-out area counts at the East Mooring Basin (EMB) in Astoria from December 1997 to June 2017. Insets illustrate the changes in magnitude and seasonality of California sea lion occurrence over the study period (x-axis denotes month; note difference in magnitude of counts on the y-axis scale between the two inset figures).

No Strangers to the Lower Columbia

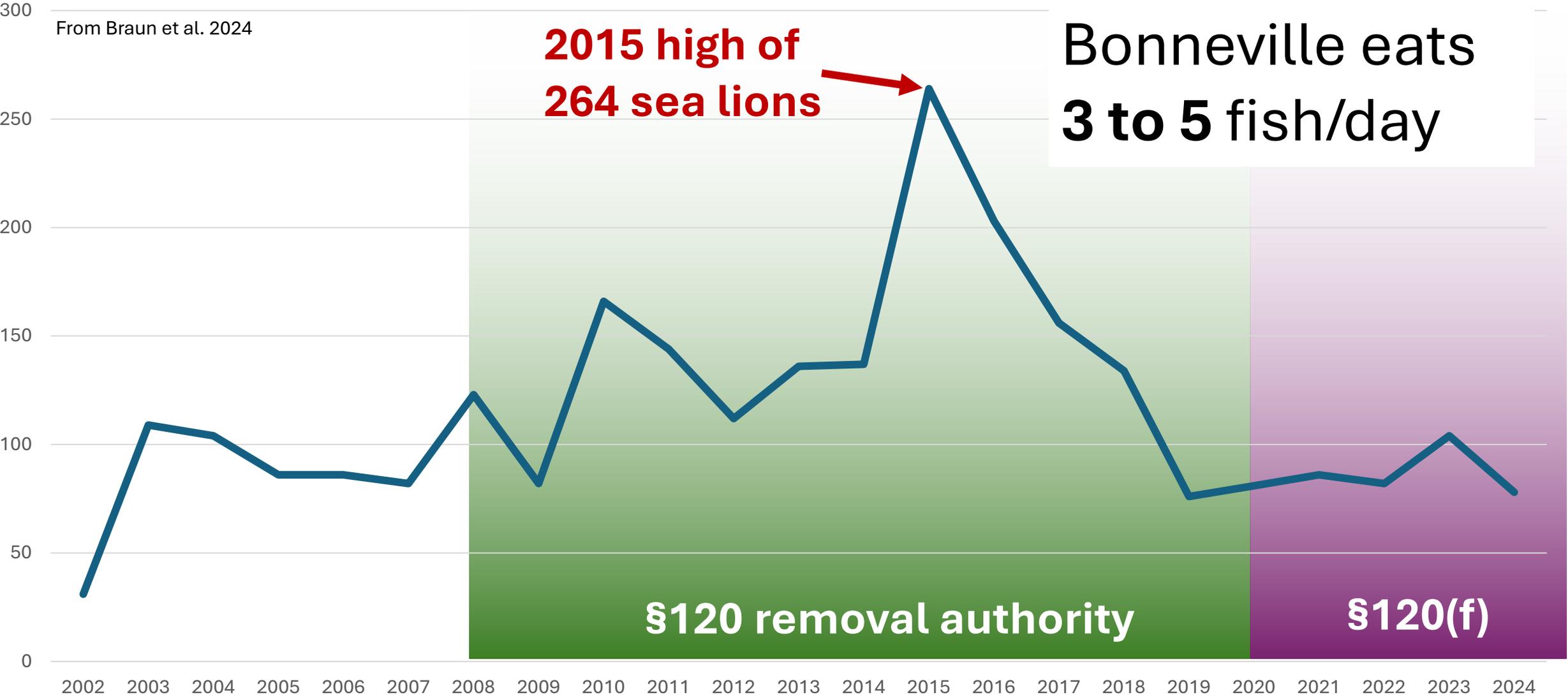
- Sea lions and seals follow the spring smelt run up the Columbia River.
- 1,000 to 5,000+ sea lions and harbor seals from the Cowlitz River to the Sandy River.
- After the smelt run, the majority drop back to the estuary/ocean.
- Timing is key to potential for salmon impacts.
 - Early smelt run: less likely impact
 - Late smelt run: likely much higher impact.



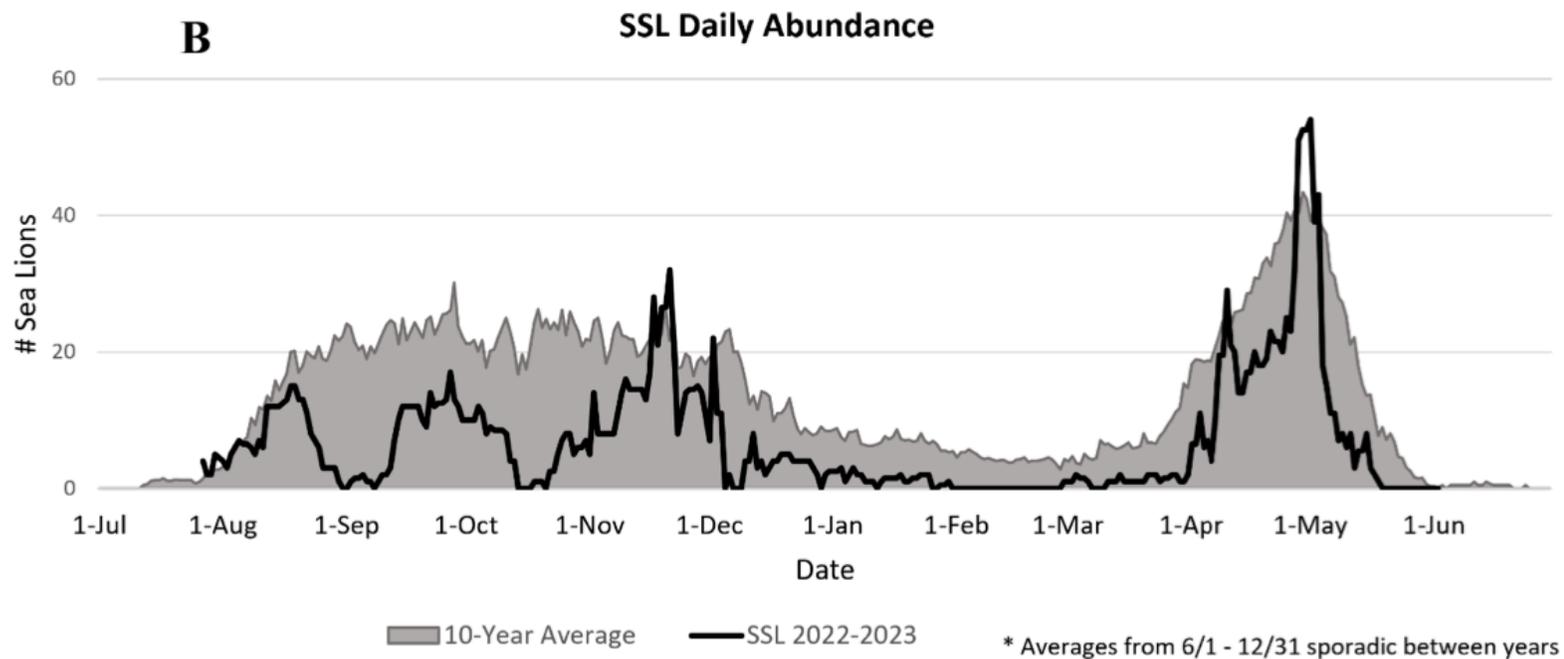
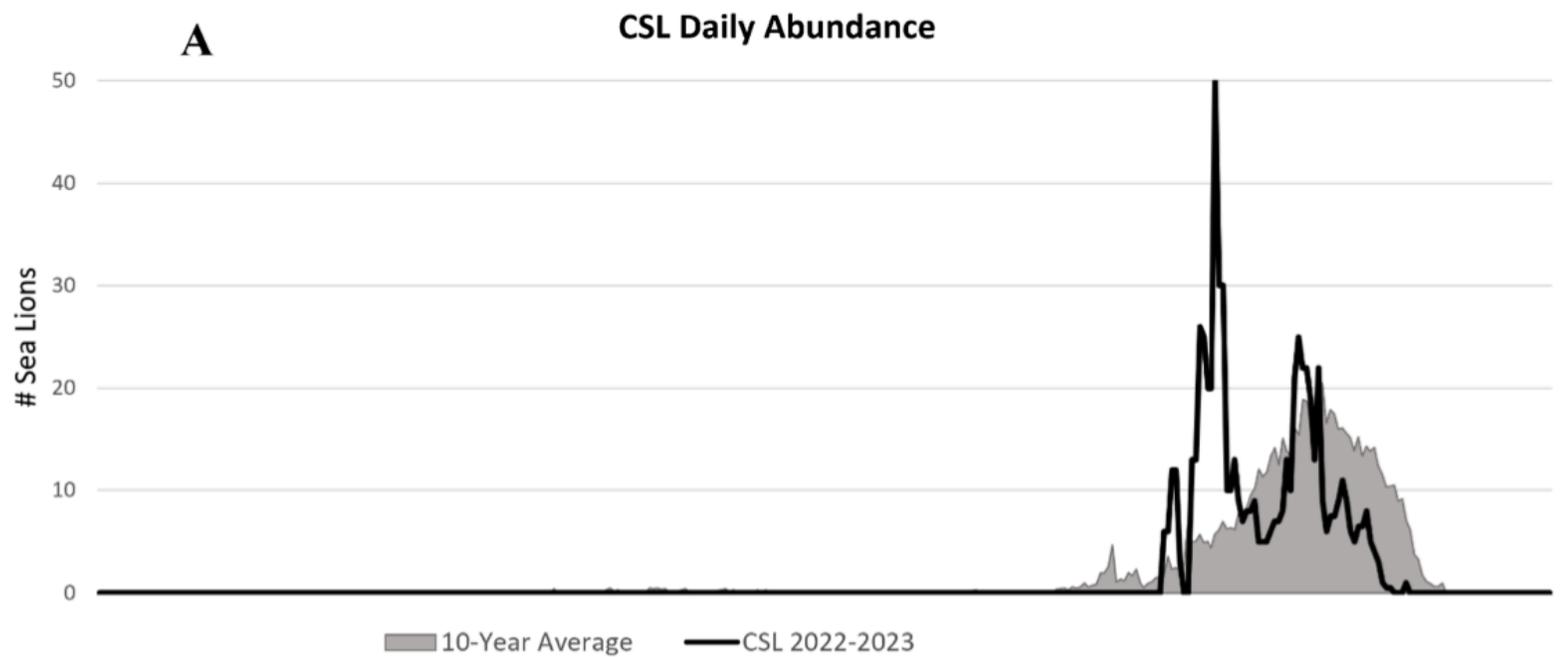
Sea Lions at Bonneville Dam



Sea Lion Numbers at Bonneville Dam

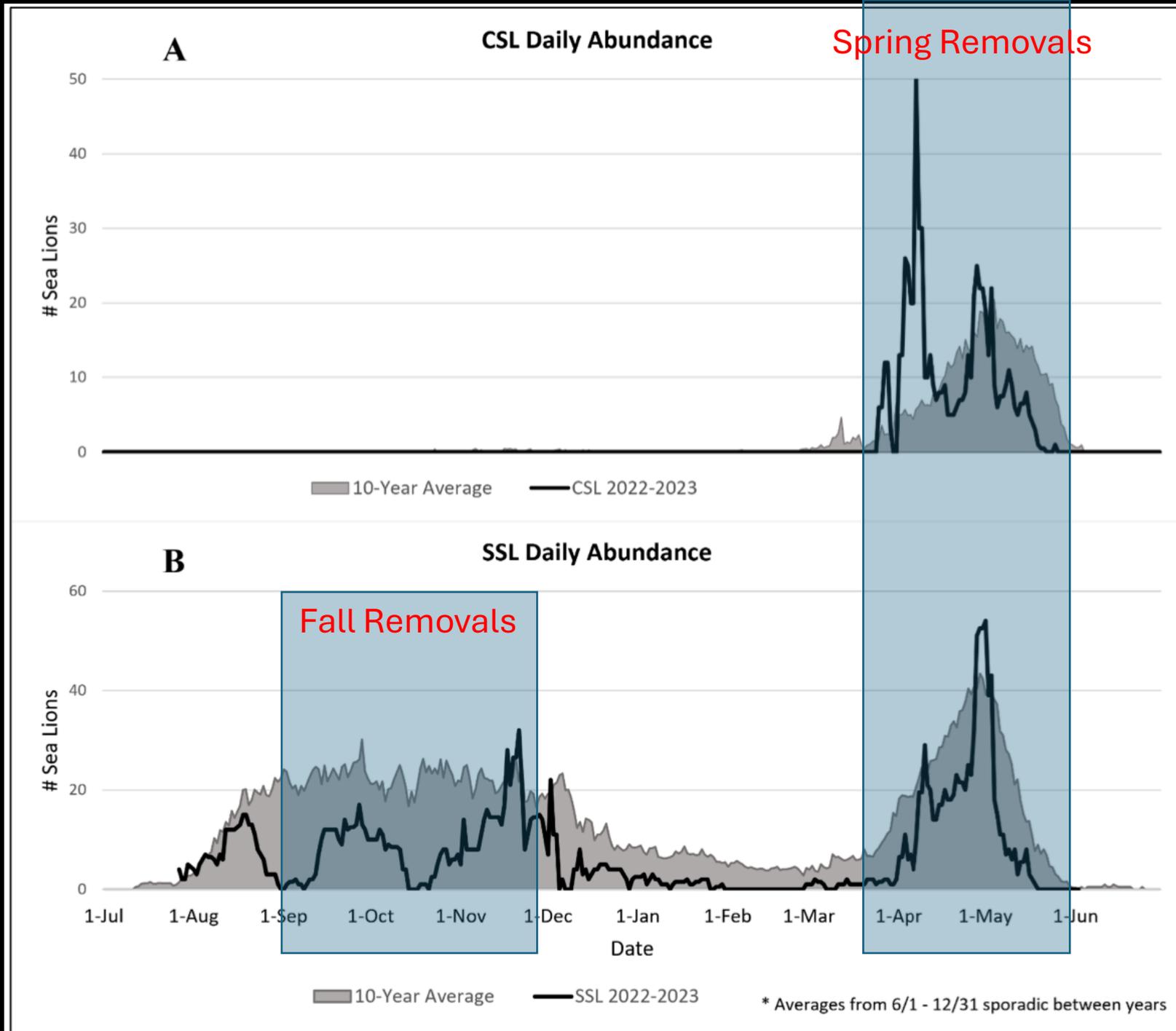


Sea lion temporal distribution at Bonneville



* Averages from 6/1 - 12/31 sporadic between years

Sea lion temporal distribution at Bonneville



Predation on Salmon Run at Bonneville

Pinniped estimated salmonid predation within ¼-mile of Bonneville Dam.
Graph does not show estimate for the 148 river miles below that area.

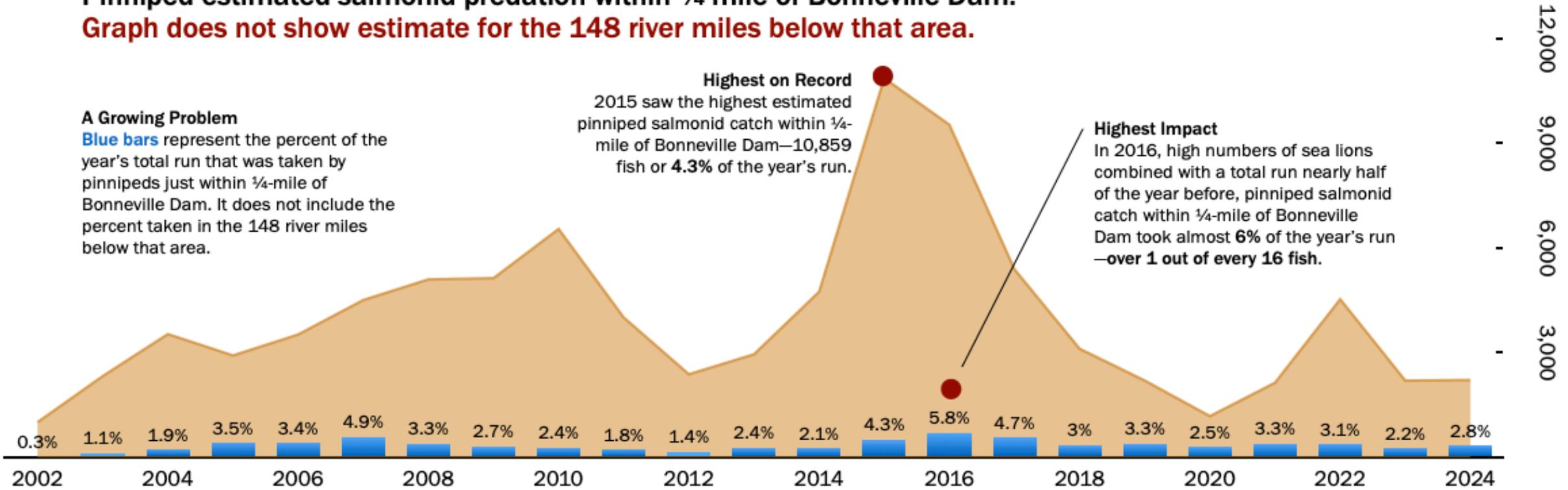
A Growing Problem

Blue bars represent the percent of the year's total run that was taken by pinnipeds just within ¼-mile of Bonneville Dam. It does not include the percent taken in the 148 river miles below that area.

Highest on Record
2015 saw the highest estimated pinniped salmonid catch within ¼-mile of Bonneville Dam—10,859 fish or 4.3% of the year's run.

Highest Impact

In 2016, high numbers of sea lions combined with a total run nearly half of the year before, pinniped salmonid catch within ¼-mile of Bonneville Dam took almost 6% of the year's run—over 1 out of every 16 fish.



graph data courtesy US Army Corps of Engineers

Impacts Columbia River Salmon Runs

- Sea lion impacts vary annually, but generally **20-25%** of the spring chinook run is lost to predation and can be as much as **half** of the run (Rub et al. 2021).
- All upriver fish runs except sockeye are impacted by sea lions at Bonneville Dam.



Predation loss at **Bonneville** and the **lower river**

		BONNEVILLE TAILRACE		LOWER RIVER	
Bonneville salmonids passage (Jan 1 – May 31)		Lost to Predation Adjusted salmonids consumption estimate in Bonneville tailrace	% of run (Jan 1 – May 31)	Lost to Predation Predation of spring chinook between estuary and Bonneville	% of run (Jan 1 – May 31)
2010	267,194	6,542	2.39%	77,560	22%
2011	223,380	4,007	1.76%	59,480	21%
2012	171,665	2,382	1.37%	51,750	23%
2013	120,619	2,954	2.39%	35,210	23%
2014	219,929	4,746	2.11%	98,470	31%
2015	239,326	10,859	4.34%	224,450	48%

From Tidwell et al. 2018 and Wargo Rub et al. 2019

Removal Timeline

Observation



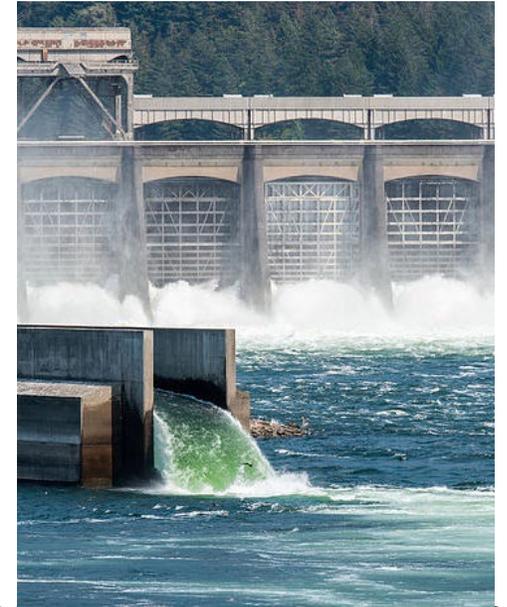
Hazing



Individual-based Removal



Area-based Removal



2000

2005

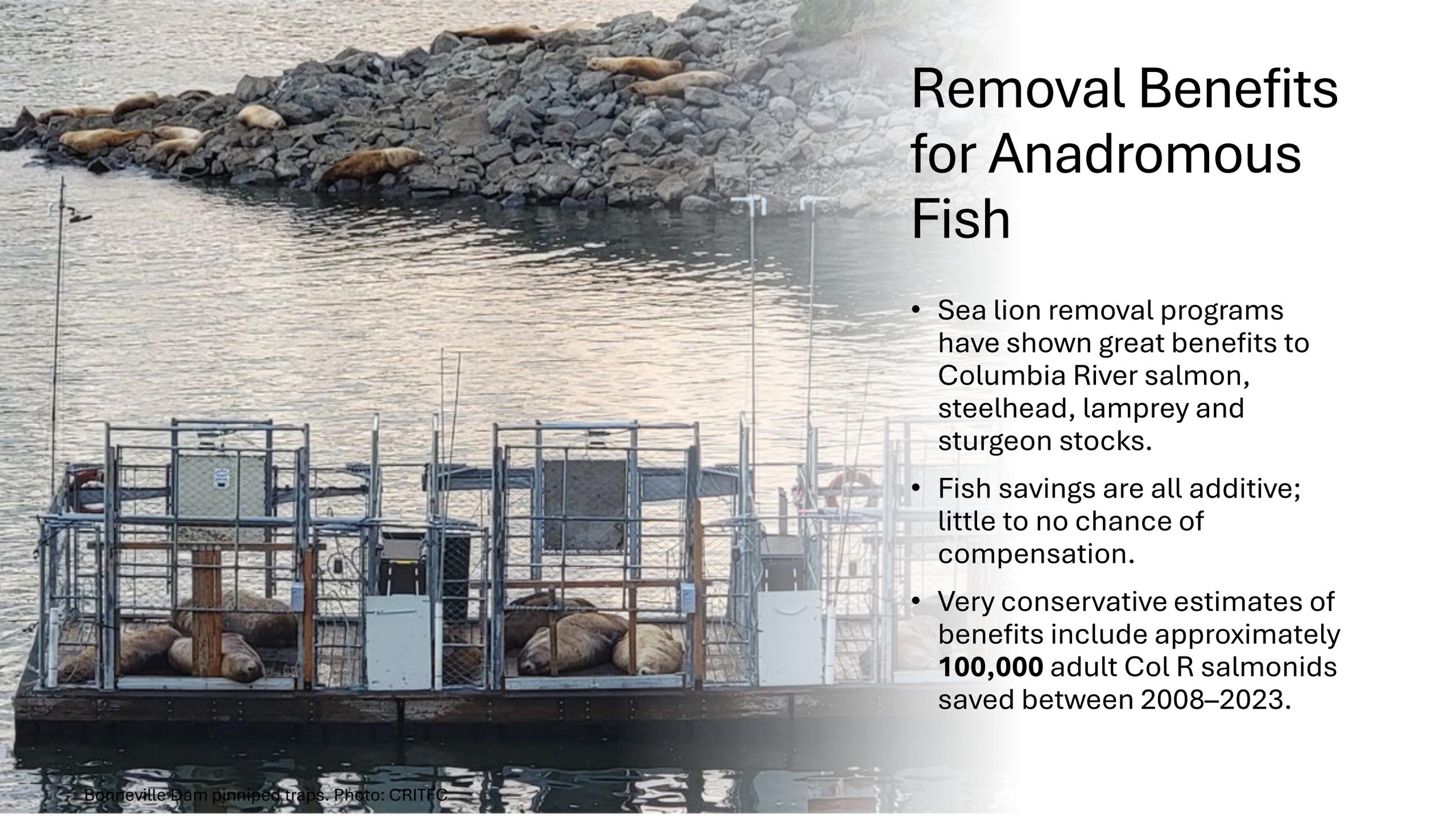
2010

2015

2020

2025

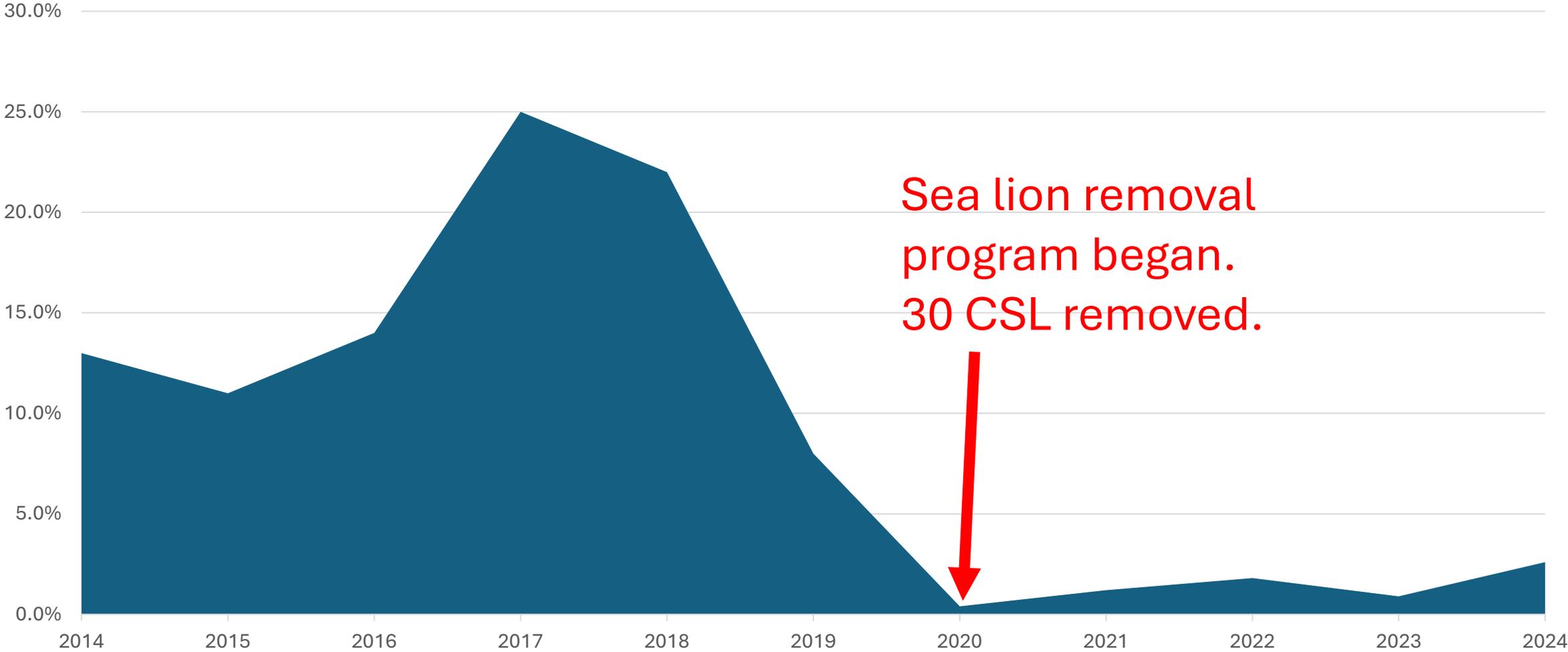
- 517 animals removed by the program: **398 CSL** | **116 SSL**
- 120(f) permit **allowed** (*remaining*) take: **540** (*424*) CSL and **176** (*60*) SSL



Removal Benefits for Anadromous Fish

- Sea lion removal programs have shown great benefits to Columbia River salmon, steelhead, lamprey and sturgeon stocks.
- Fish savings are all additive; little to no chance of compensation.
- Very conservative estimates of benefits include approximately **100,000** adult Col R salmonids saved between 2008–2023.

Does Removal Work? Look at Willamette Falls.



% of potential winter steelhead escapement lost to sea lions at the base of Willamette Falls

Challenges with Tributary Removals

- Most trappable haul out sites are in the mainstem Columbia but permit only allows for removal in the tributaries.
- Gearing and crewing up to work more in the lower river tributaries.
- Asking for Congressional appropriations and 6S funding.
- Need legislative fix to allow removal of animals trapped in the lower mainstem of the Columbia.



Our MMPA Amendment Recommendations

- **Recognize tribal co-management authority throughout the MMPA**

Tribal authority is only recognized in the specific case of the Columbia River under §120(f). This oversight should be corrected for the entire Act.

- **Pinniped Management Section**

Provide tools to allow tribal and state co-managers flexibility to manage pinnipeds where benefits to fish populations can result.

As pinniped populations grow, additional interactions with at-risk fish populations occur at new locations. With management tools in place, co-managers can react quickly and alleviate pinniped-fishery interactions before they escalate, conserving both fish and pinnipeds.

A bald eagle is shown in mid-flight over a body of blue water. The eagle's wings are fully extended, and its talons are visible. Below the eagle, the dark, rounded back of a whale is seen breaking the surface of the water, creating a splash. The background consists of gentle waves on the ocean surface.

How Council Can Support the Effort

- Seize on bipartisan support for legislative action that would provide **co-managers with pinniped management tools**
- Develop broadly supported **regional recommendation** for legislative action
- Monitor Congressional process with a goal to complete legislation by **August 2026.**

Other Recommendations the Council Could Support

- Need for long-term stable funding for efforts in the lower mainstem.
- Including **sea lion removal funding** for eligible entities in the federal appropriations.
- NOAA-F on a 5-year basis to **complete Stock Assessment Reports and develop population statistics** OSP, PBR, MNPL, etc the year prior to §120 and §120(f) permit expiration dates.
- NOAA-F **monitor lower Columbia River pinniped predation** using Rub et al. 2019 methods.





BONNEVILLE
POWER ADMINISTRATION



Washington
Department of
**FISH and
WILDLIFE**