

Sea Lion Impacts and Management in the Columbia River

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Columbia River Inter-Tribal Fish Commission



RCMT Meeting, Astoria, OR. April 24, 2019



Columbia River Inter-Tribal Fish Commission



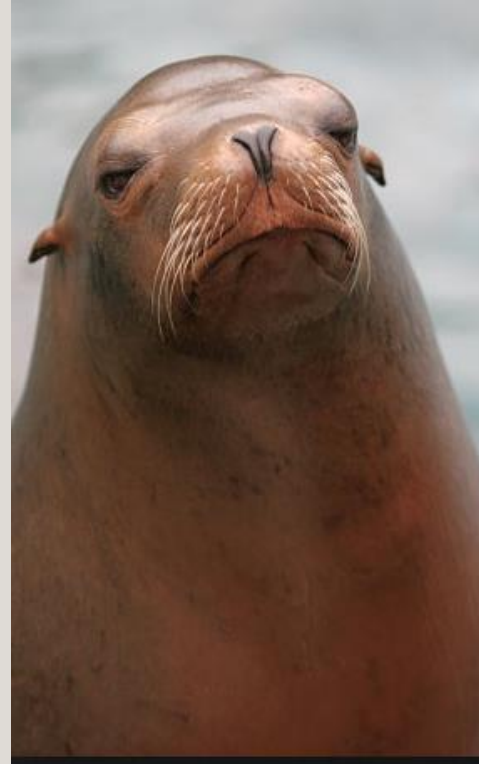
Presentation Outline

1. Status and history of California and Steller sea lions
2. How big is the sea lion problem?
3. What are the impacts of sea lions on salmon?
4. Where do the impacts occur?
5. What are the management actions?
6. New sea lion legislation/why is the future going to be better?



Steller Sea Lion

- rounded head
- lighter brown color
- males 800-2000 lbs



California Sea Lion

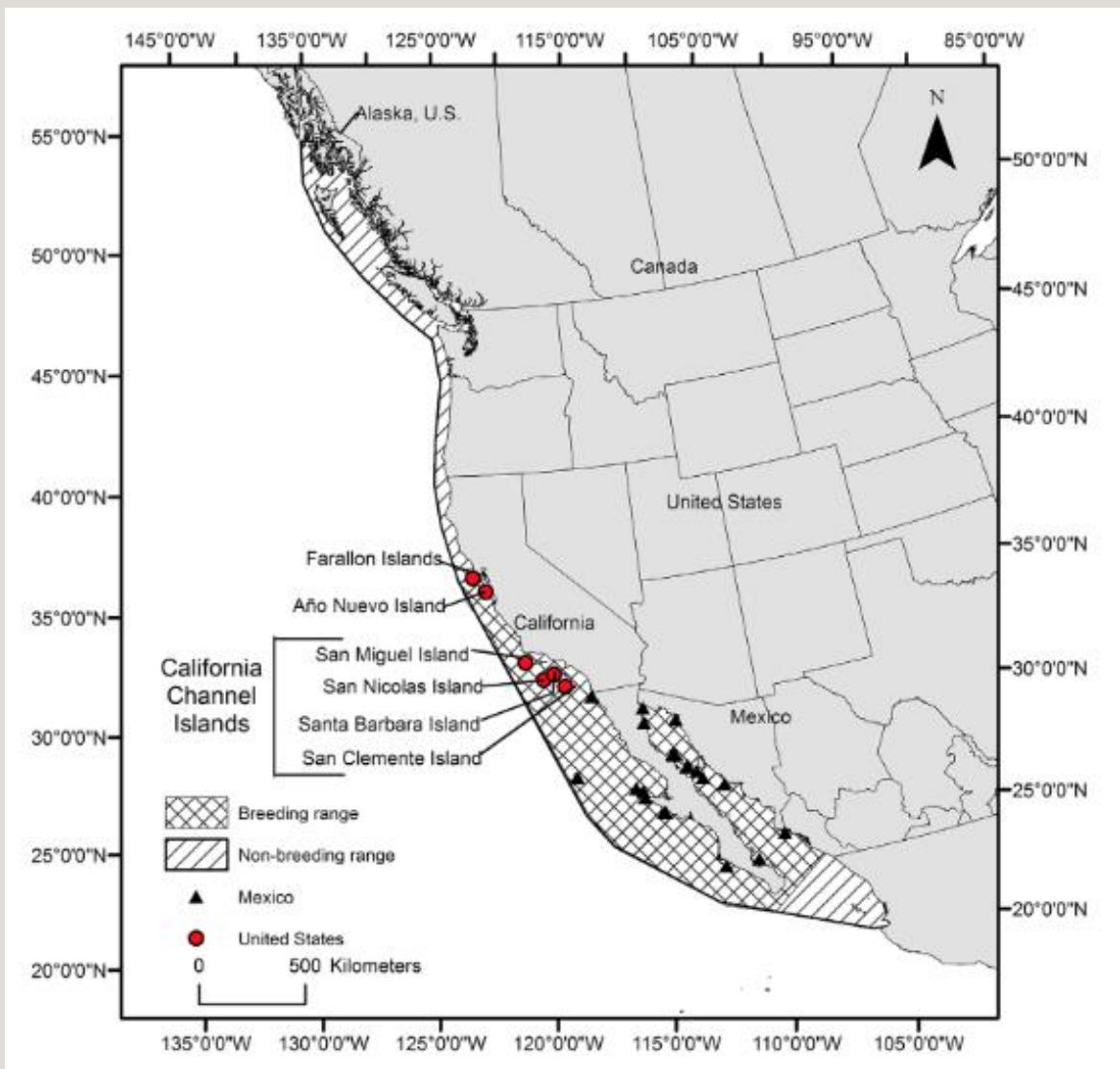
- point on head
- darker brown color
- males 500-1200 lbs



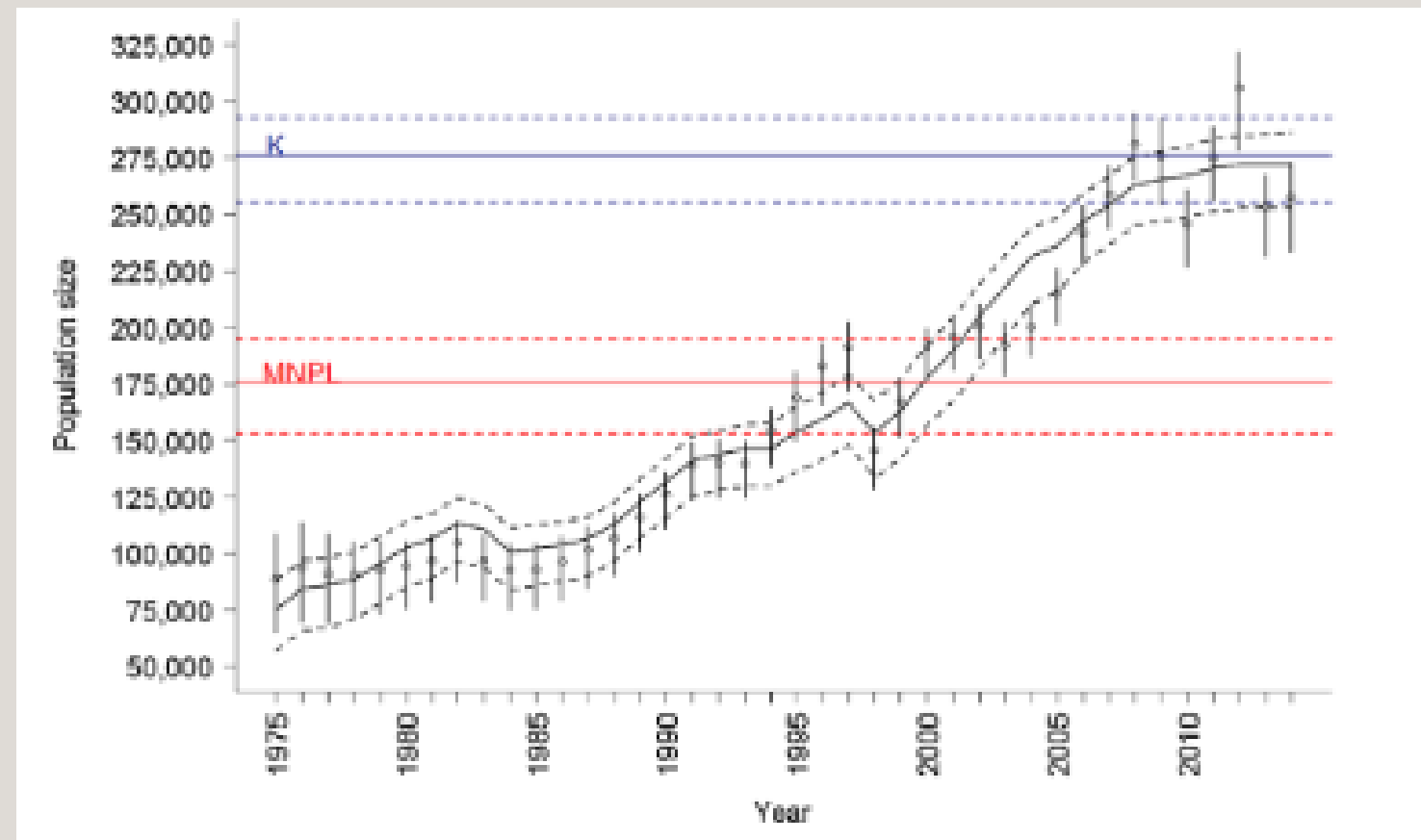
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Status of California Sea Lions



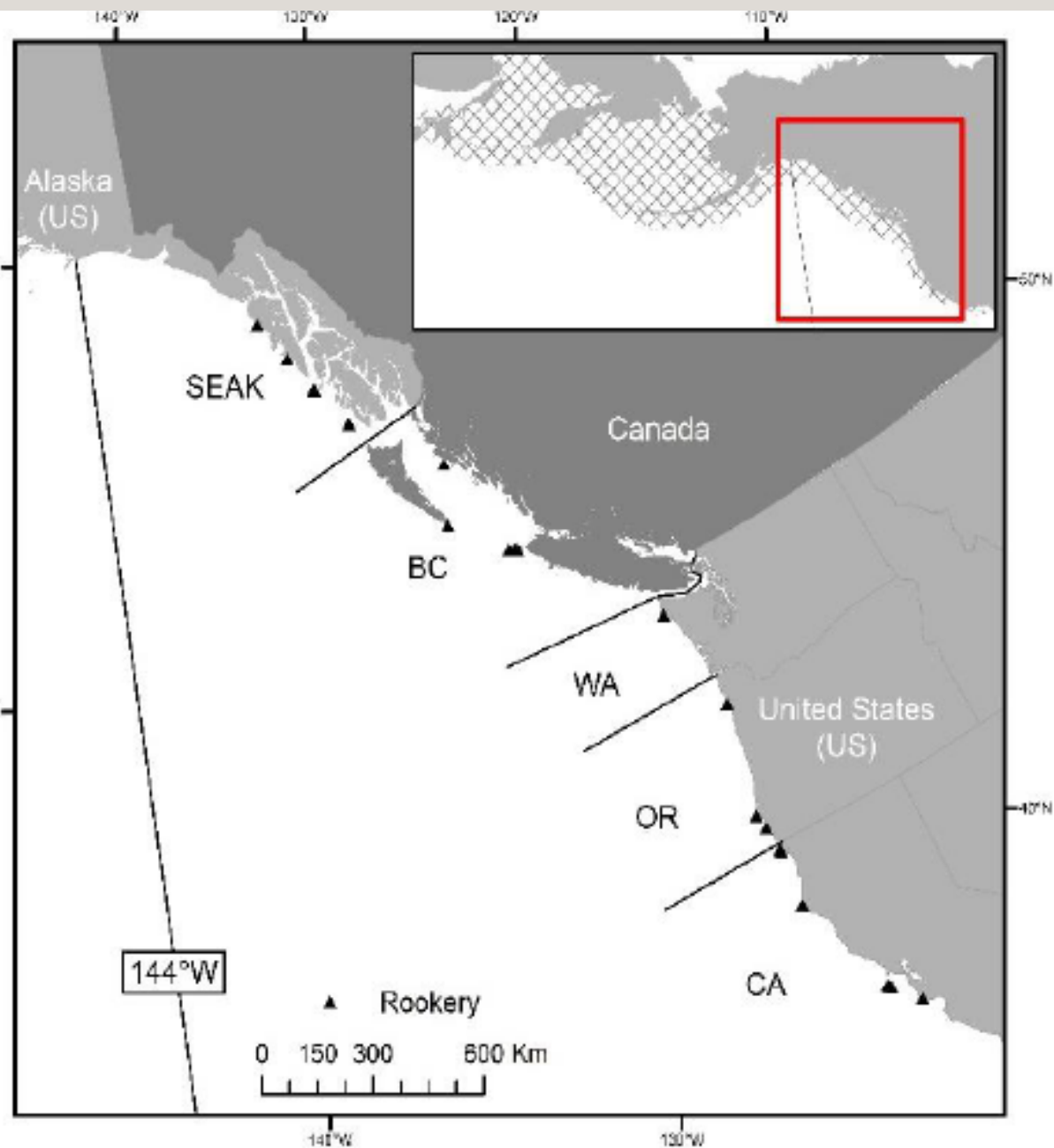
From Laake et al. 2017



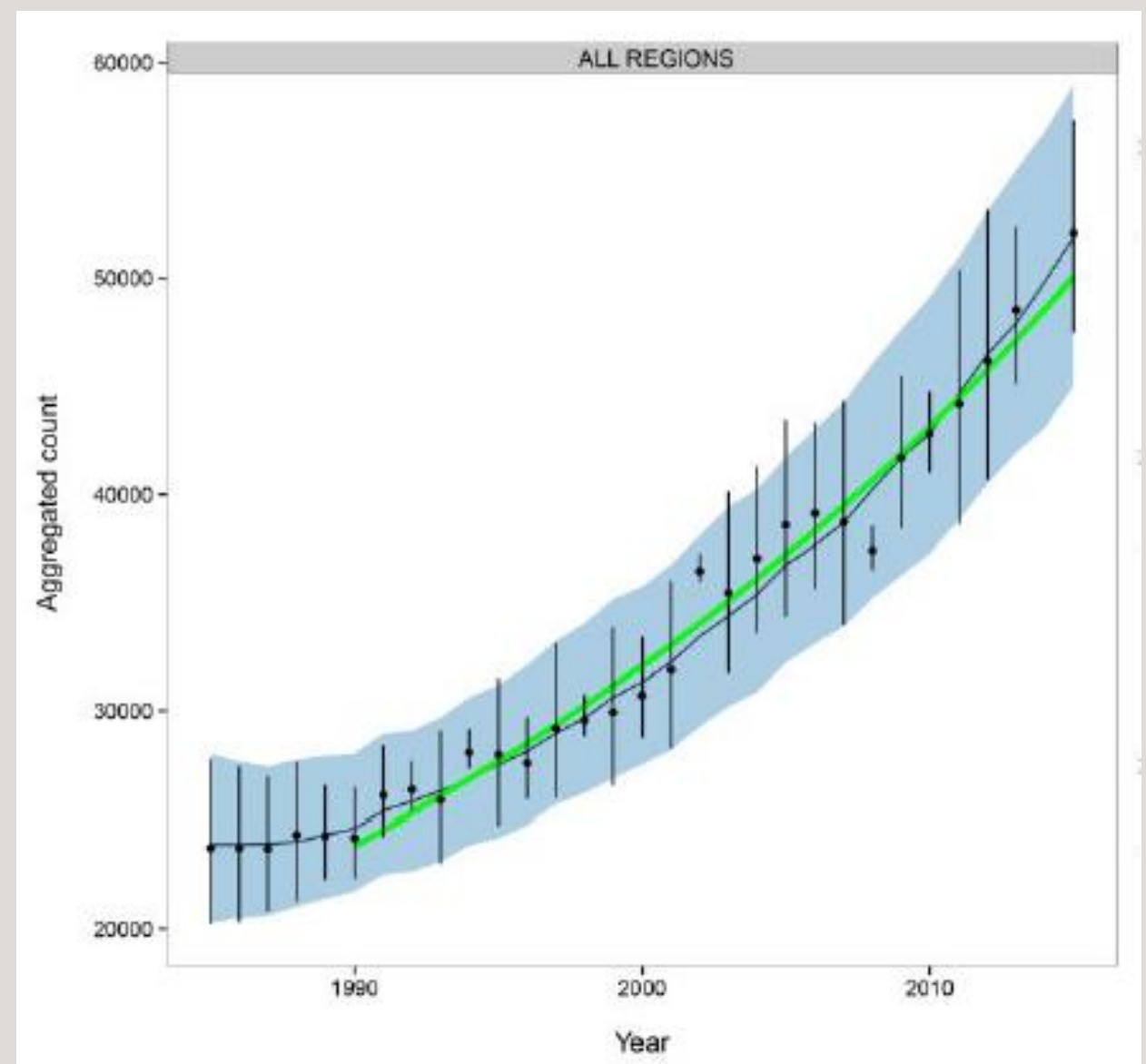
PBR (Potential Biological Removal)

9,200

Status of Steller Sea Lions



From NOAA 2017



PBR (Potential Biological Removal)

2,378

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What Is the Scope of Pinniped Predation?

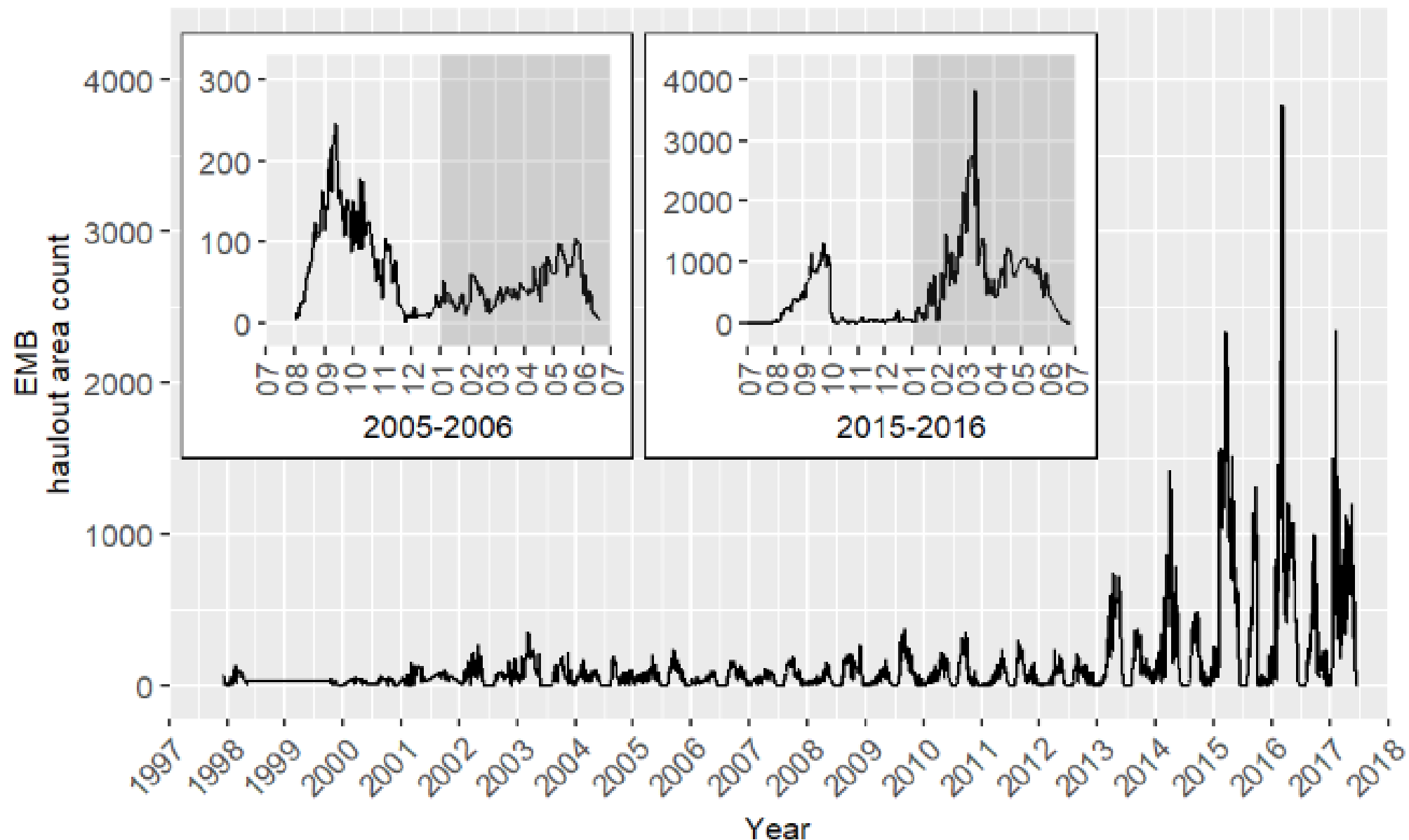
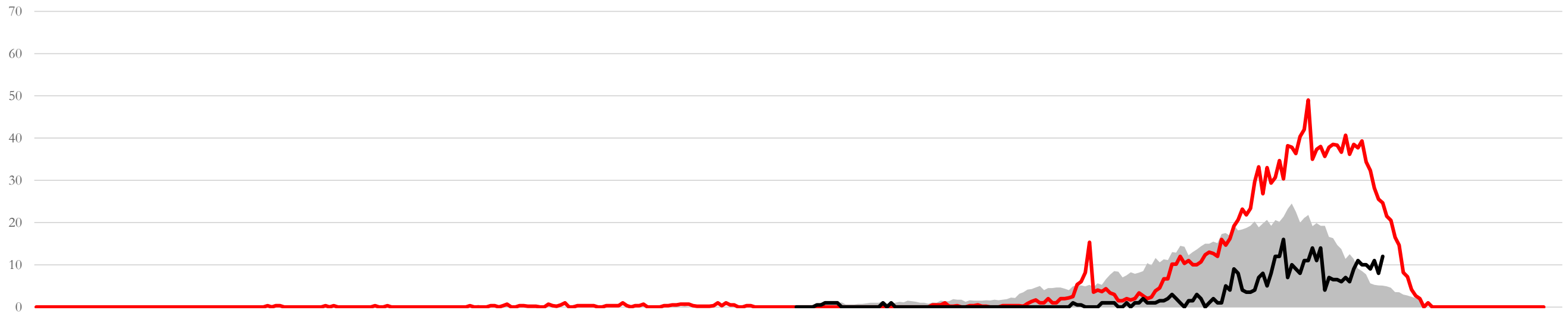


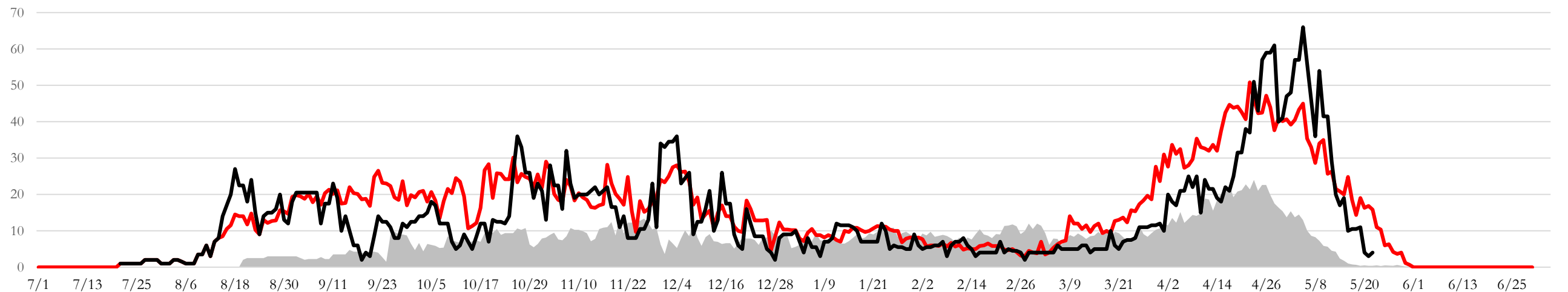
Figure 2. Time series of California sea lion haul-out area counts at the East Mooring Basin (EMB) in Astoria from December 1997 to June 2017. Insets illustrate the changes in magnitude and seasonality of California sea lion occurrence over the study period (x-axis denotes month; note difference in magnitude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

Bonneville Pinniped Abundance

California Sea Lion Daily Abundance



Steller Sea Lions Daily Abundance



2008-2014 Average per Day*

2015 - 2017 Average Per Day

2018

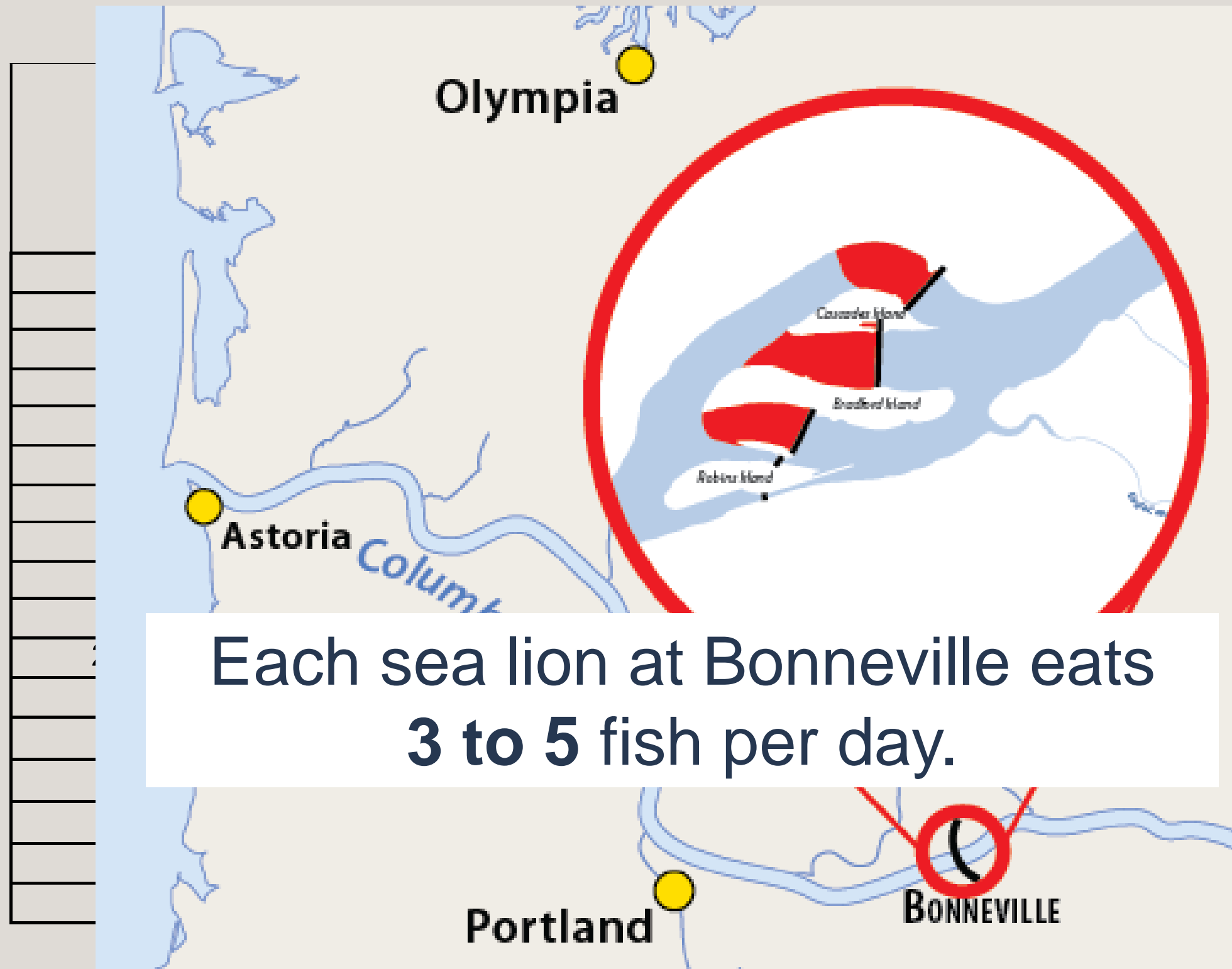
* Averages from 6/1 - 12/31 sporadic between years

From Kyle Tidwell, USACE

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Sea Lion Impacts at Bonneville



Each sea lion at Bonneville eats
3 to 5 fish per day.

Sea Lion Abundance in the Lower River



Predation loss at Bonneville and the lower river

Year	Bonneville Dam salmonids passage (Jan 1 – May 31)	Adjusted salmonids consumption estimate in Bonneville tailrace	% of run (Jan 1 – May 31)	Total Pinnipeds in the Bonneville tailrace	Loss of spring chinook between estuary and Bonneville
2010	267,194	6,542	2.39%	166	77,560
2011	223,380	4,007	1.76%	144	59,480
2012	171,665	2,382	1.37%	112	51,750
2013	120,619	2,954	2.39%	136	35,210
2014	219,929	4,746	2.11%	137	98,470
2015	239,326	10,859	4.34%	264	224,450

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



Management Actions

- Hazing
- States implement lethal removal
 - MMPA
 - 120 process
 - 120 criteria complications
 - WF 120
- Lethal removal totals



Hazing

- Vessel chase, crackershells, seal bombs
- Most concerned about driving sea lions away from the most profitable hunting areas
- Position boat upstream of sea lions and deploy munitions upstream of



Some short-term value, sea lions don't eat when they are being hazed, but long-term benefits are very low.

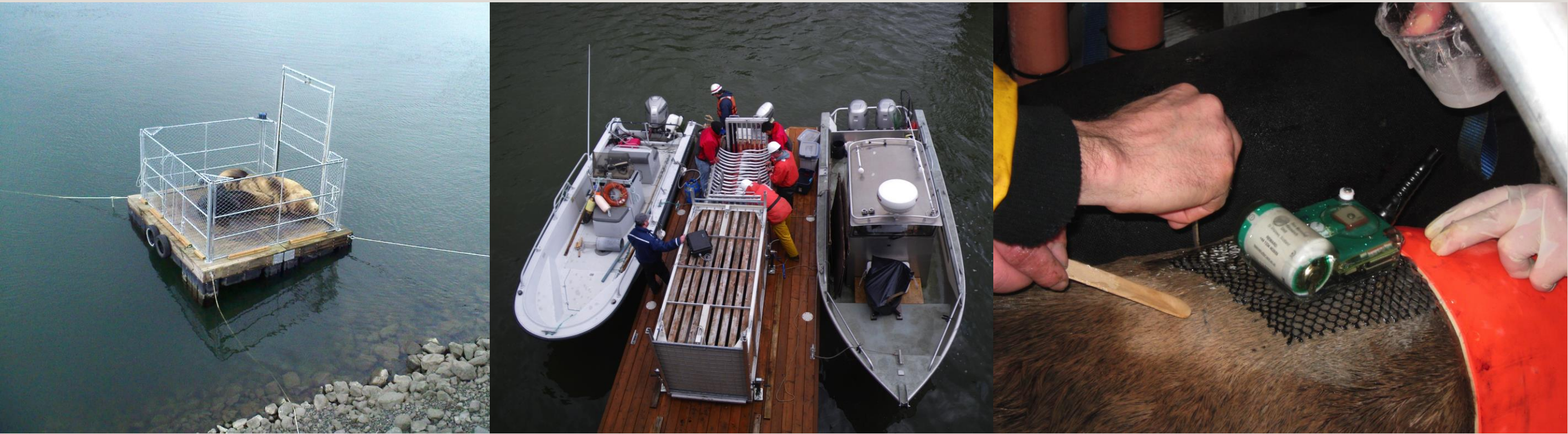
- Hazing is a BICF RFA requirement
- Hazing is required as a criterium for lethal removal under the current permit
- Hazing has been the only management tool available for Steller sea lions

Removal Program is Highly Regulated

- Only individually identifiable CSL – must trap and brand.
- Individual must be observed at Bonneville 5 days.
- Individual must be observed eating a salmonid.
- Individual must be subjected to hazing.
- Once criteria is met, NMFS is notified and a request to add that individual to the removal list is made.
- If the individual is recaptured it can be removed.
- Up to 92 CSL can be removed per year.



States' Lethal Removal at Bonneville Dam



Oregon and Washington began a trap and removal effort at Bonneville Dam in 2008.

Sea Lion Removals at Bonneville

Table 13. Summary of California sea lion (CSL) branding and removals (captivity, euthanasia, accidental mortality) and Steller sea lion (SSL) branding at Bonneville Dam, 2007 to 2018. Note: CSL removals include all animals removed by the States under the Section 120 LOA of the MMPA.

Year	CSL Authorized for removal	CSL Branded	CSL Removed	SSL Branded
2007	N/A	8	N/A	N/A
2008	85	4	11*	N/A
2009	85	3	15	N/A
2010	85	9	14	8
2011	85	9	1	9
2012	92	6	13	19
2013	92	11	4	3
2014	92	21	15	0
2015	92	131	32*	0
2016	92	50	59	0
2017	92	18	24	12
2018	92	8	27	3
Total	892	278	217	54

* Does not include 2 accidental mortalities of CSL not listed for removal.

New Law PL 115-329

- Tribes are included
- Tribes can delegate to CRITFC
- Preparing a joint application with OR, WA, ID, 4 treaty tribes, and CRITFC
- Process takes about a year
- Area-based management instead of individual sea lion



Questions?



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