

# USACE PINNIPED MONITORING AT BONNEVILLE DAM 2002-2020

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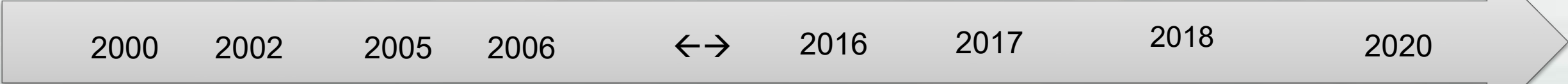


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- 2000**
  - Bonneville Pinnipeds increase
- 2002**
  - BiOp = USACE monitoring program
- 2005**
  - SLEDS
  - Data needs for LOA
- 2006**
  - NOAA issues LOA for CSL removal
- ↔**
  - Data requirements
  - Litigation
- 2016**
  - CSL LOA renewed
  - Record CSL impact & removal
- 2017**
  - Re-evaluation of CSL removal criteria
  - Increased removal
- 2018**
  - Declining CSL impact
- 2020**
  - 3 consecutive years of low CSL impact



# USACE Authority: No Jeopardy BiOp

## NMFS 2020 CRS Biological Opinion 1.3.2.3 Predator Management and Monitoring Actions

- Install and potentially improve **sea-lion exclusion devices** in ladder entrances at Bonneville Dam
- **Provide dam access** and, as practicable, other support (e.g., crane support) **for land and water-based harassment and trapping efforts by state and tribal agencies.**
- The Corps will **fund dam-based hazing** (focusing on deterrence from fishway entrances) and haul out dissuasion of pinnipeds from March 31 through May 31 and from August 15 through October 31 at Bonneville Dam. Hazing season start and end dates may be adjusted, in coordination with NMFS, based on factors such as the number of animals present and **hazing effectiveness** (i.e. Study).
- Develop and implement, in coordination with NMFS, a revised Bonneville Dam **pinniped predation monitoring** plan that reflects current and near-future management needs. The Corps will continue to provide monthly and annual reports to NMFS and FPOM.







# R & R



# CSL Abundance

Year	Total Hours Observed	California Sea Lions
2002	662	30
2003	1,356	104
2004	516	99
2005*	1,109	81
2006	3,650	72
2007	4,433	71
2008	5,131	82
2009	3,455	54
2010	3,609	89
2011	3,315	54
2012	3,404	39
2013	3,247	56
2014	2,947	71
2015	2,995	195
2016	1,974	149
2017	1,142	92
2018	1,410	67
2019	836	26
2020	331	34

# CSL Predation

Year	California Sea Lions		
	Bonneville Dam Salmonid Passage	Adjusted Salmonid Consumption Estimates	% Run
2002	284,732	1,010	0.4%
2003	217,934	2,329	1.1%
2004	186,771	3,516	1.9%
2005	81,252	2,904	3.5%
2006	105,063	3,312	3.1%
2007	88,474	4,340	4.7%
2008	147,558	4,735	3.1%
2009	186,056	4,353	2.3%
2010	267,167	5,296	1.9%
2011	223,380	2,689	1.2%
2012	171,665	1,067	0.6%
2013	120,619	1,497	1.2%
2014	219,929	2,747	1.2%
2015	239,326	8,324	3.3%
2016	154,074	6,676	4.1%
2017	109,040	2,142	1.9%
2018	100,887	746	0.7%
2019	63,591	176	0.3%
2020*	47,074	373	0.8%



# Data Informed Management

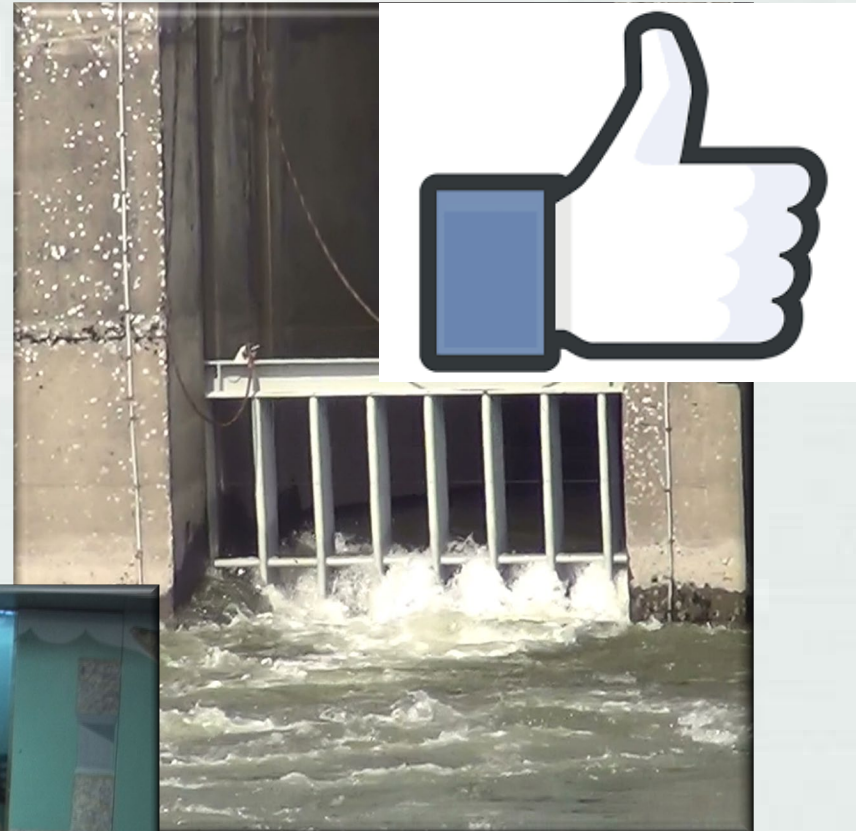
- 2002 - 2005 data used for initial LOA
- 2006 - 2016 data used for LOA renewal
  - Individual CSL ID + Daily monitoring = Qualification for Removal
    - ▶ 2006 - 2017 : Same individual + 5 days + 1 salmon kill
    - ▶ 2017 - 2020 : Same individual + 3 days or 1 salmon kill
- 2019 Interim BiOp requires Fall and Winter monitoring
- 2020 BiOp allows flexibility for monitoring and hazing (pending evaluation)





# Deterrents and Their Efficacy

- 2006: Sea lion excluder devices (SLEDs)



# Deterrents and Their Efficacy

## Relocation of CSL



## Acoustic Deterrent Devices

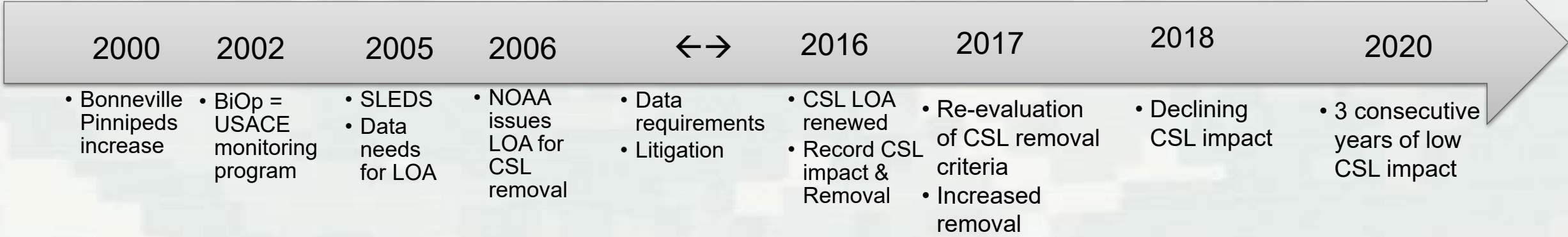


## Non-Lethal Tactile and Acoustic deterrents





# Questions?



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