



CHAPTER 6: PREDATION ON SMOLTS BY UNMANAGED PISCIVOROUS WATERBIRDS

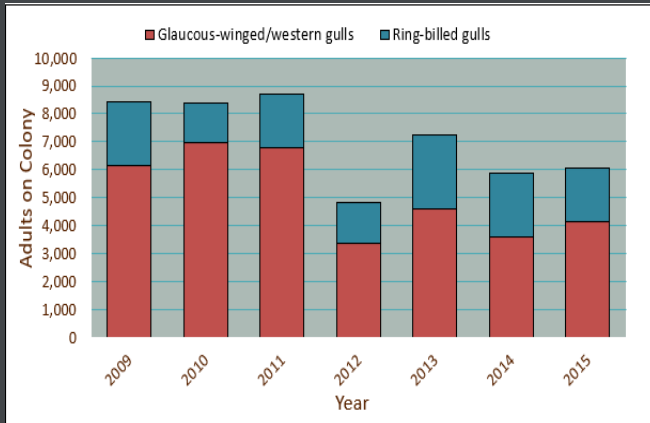
Conclusions and considerations

CONCLUSIONS

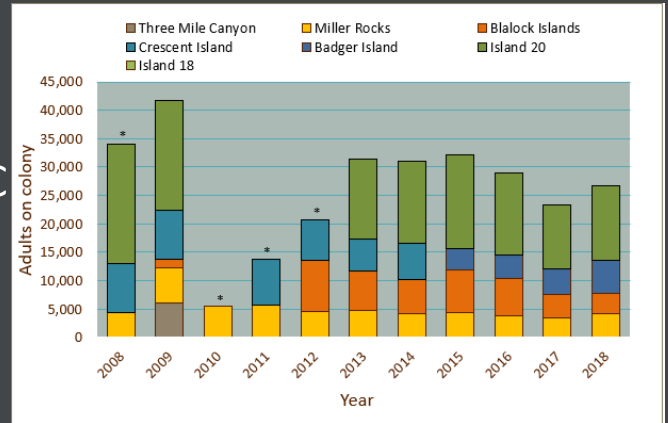
CHAPTER 2: Caspian tern management in the CPR



GULLS MOST ABUNDANT AVIAN PREDATOR IN COLUMBIA RIVER BASIN



Columbia River Estuary



Columbia Plateau Region

Over 30,000 gulls are currently nesting at nine different colonies located on the Columbia River

AMERICAN WHITE PELICAN COLONIES GROWING

Year	Columbia River Estuary		Columbia Plateau Region	
	Rice Island	Miller Sands Spit	Badger Island	Crescent Island
2004	0	0	B	0
2005	0	0	1057	0
2006	0	0	1310	0
2007	0	0	913	0
2008	0	0	1349	0
2009	0	0	1754	0
2010	0	42	2048	50
2011	0	194	2228	0
2012	0	122	2075	0
2013	0	104	2077	0
2014	0	376	2447	0
2015	0	B	3267	0
2016	0	351	3118	0
2017	102	76	2513	0
2018	398	246	3330	0

Badger Island is home to a growing colony of American white pelicans. American white pelicans have recently (beginning in 2010) established a colony in the Columbia River estuary

MANY UNMANAGED COLONIES NOT HAVING SIGNIFICANT IMPACT

ESU/DPS	Lenore DCCO 2017-2019	Potholes DCCO 2012	Hanford DCCO 2018	Badger AWPE 2007-2014
SR Sockeye	< 0.1%	< 0.1%	< 0.1%	0.2% (0.2-0.3)
SR <u>Spr</u> /Sum Chinook	< 0.1%	< 0.1%	< 0.1%	0.1% (0.1-0.1)
UCR <u>Spr</u> Chinook	< 0.1%	< 0.1%	0.2% (0.1-0.7)	0.2% (0.1-0.5)
SR Fall Chinook	< 0.1%	< 0.1%	< 0.1%	0.1% (0.1-0.1)
SR Steelhead	< 0.1%	< 0.1%	< 0.1%	0.2% (0.2-0.3)
UCR Steelhead	< 0.1%	0.3% (<0.1-0.8)	0.2% (0.1-0.4)	0.1% (0.1-0.2)

Double-crested cormorants nesting off the Columbia River and Badger Island American white pelicans don't appear to be having an appreciable impact of smolt survival

SOME UNMANGED COLONIES MAY HAVE APPRECIABLE IMPACT

ESU/DPS	Island 20 LAXX 2013-2019	Badger LAXX 2015-2019 ¹	Crescent LAXX 2007-2014	Blalock LAXX 2013-2019	Miller Rocks LAXX 2007-2019	Foundation DCCO 2007-2014
SR Sockeye	0.9% (0.3-1.7)	2.7% (1.2-4.8)	2.2% (1.3-3.2)	2.0% (1.0-3.0)	6.2% (4.8-7.7)	3.4% (2.4-4.5)
SR <u>Spr</u> /Sum Chinook	0.2% (0.1-0.3)	0.5% (0.3-0.6)	1.0% (0.8-1.2)	0.2% (0.1-0.2)	1.2% (1.1-1.4)	1.7% (1.5-2.1)
UCR <u>Spr</u> Chinook	0.5% (0.1-1.2)	1.6% (0.7-2.9)	1.2% (0.4-2.3)	0.4% (0.2-0.6)	2.1% (1.7-2.4)	0.4% (0.1-0.9)
SR Fall Chinook	0.2% (0.1-0.4)	0.9% (0.5-1.4)	0.6% (0.4-0.9)	0.4% (0.3-0.6)	2.0% (1.8-2.4)	1.2% (0.9-1.5)
SR Steelhead	1.6% (1.2-1.9)	3.3% (2.5-4.3)	4.8% (4.1-5.6)	2.4% (2.0-3.0)	7.2% (6.5-8.1)	4.0% (3.4-4.7)
UCR Steelhead	4.1% (3.3-4.9)	5.0% (3.5-6.9)	5.8% (5.0-6.9)	3.9% (3.0-4.8)	8.2% (6.9-9.3)	0.3% (0.2-0.4)

Gulls spp. nesting at upriver colonies and double-crested cormorants nesting on Foundation Island appear to be having an impact, especially on sockeye and steelhead stocks

CONSIDERATIONS

CHAPTER 2: Caspian tern management in the CPR



MORE DATA NEEDED TO ASSESS IMPACTS

- More data needed to determine to what extent gull predation is compensatory/additive
- Deposition rates need to be incorporated into predation rate estimates for American white pelicans
- Impacts of gull colonies in the estuary and at off-river locations in the Columbia Plateau region unknown
- As the distribution and numbers of nesting piscivorous waterbirds change in the Columbia River Basin, continue to monitor looking for new and growing impacts of avian predation on smolt survival

Additional research and continued monitoring needed

QUESTIONS

CHAPTER 2: Caspian tern management in the CPR

