

Understanding Salmon Production in Sixmile Lake, Joint Base Elmendorf-Richardson

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- In 2018, the DoD partnered with USFWS to better understand salmon populations on base
 - Spawner-recruit analysis → varied widely from year to year
- Identified three major salmon research areas to investigate
 - water temperature profiles
 - predation on rearing salmonids
 - spawning habitat limitation





Spawning Habitat Project Design

- Utilize weir counts at mouth of Lower Sixmile Lake
- Monitor and count salmon entering Upper Sixmile Lake
- Conduct redd surveys



	2022		2023	
	Lower	Upper	Lower	Upper
Sockeye	1,047	887	2,540	1,7807
Coho	36	29	45	28
Pink	13	9	1,179	270
Chum		3	7	3

Yearly Fish Passage

- Average of 76% of the returning sockeye spawn in Upper Sixmile Lake
- Average of 71% of the returning coho spawn in Upper Sixmile Lake

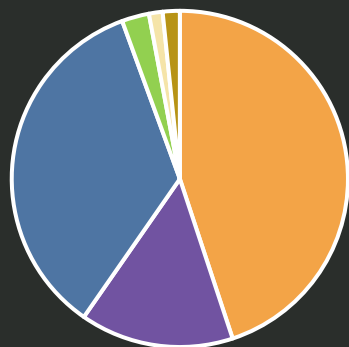


- Sockeye spawned in only a handful of localized spots throughout the lakes
 - Average of 61% of all documented redds located in Upper Sixmile Lake
- Roughly 1727 linear feet of the 19050 feet of shoreline is being used to spawn in Lower Sixmile (9%)
- Roughly 2080 linear feet of the 8070 feet of shoreline is being used to spawn in Upper Sixmile (26%)

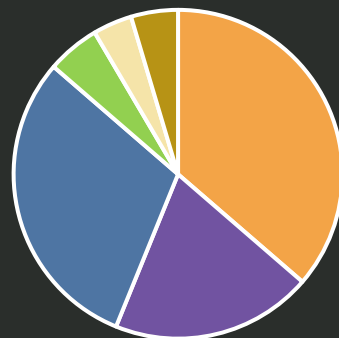


Gravel Size Comparison (2022 & 2023 combined)

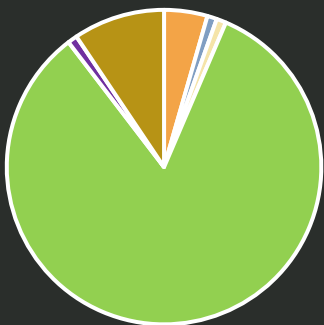
Lower Sixmile Redd Sites



Upper Sixmile Redd Sites



Control Sites

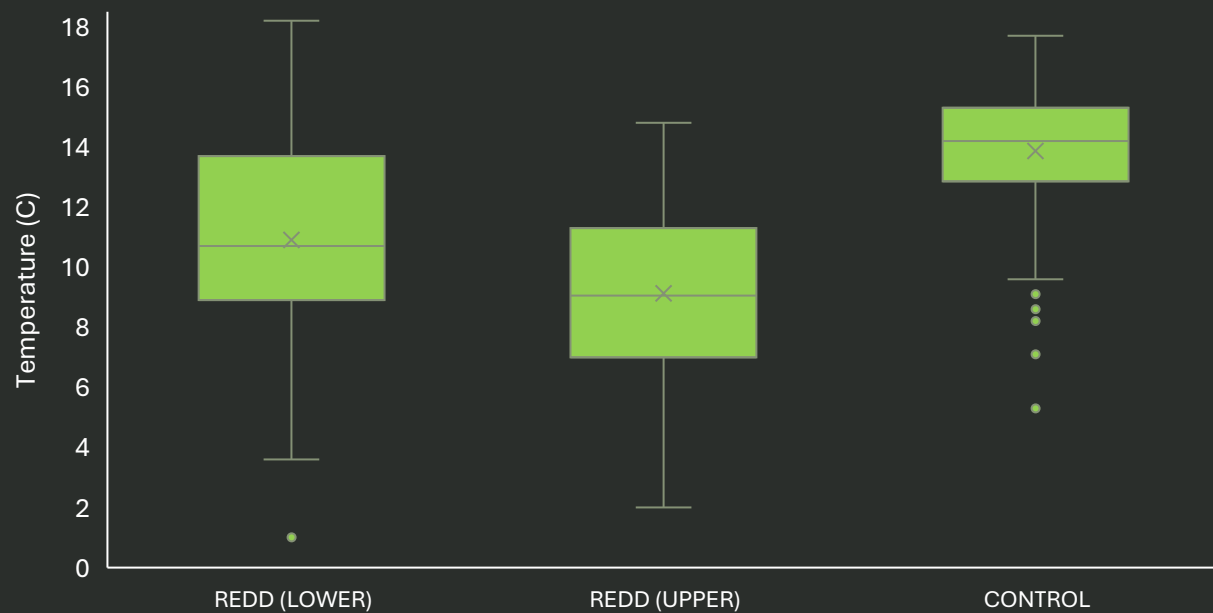


■ Fine ■ Medium ■ Coarse ■ Sand ■ Silt ■ Organic

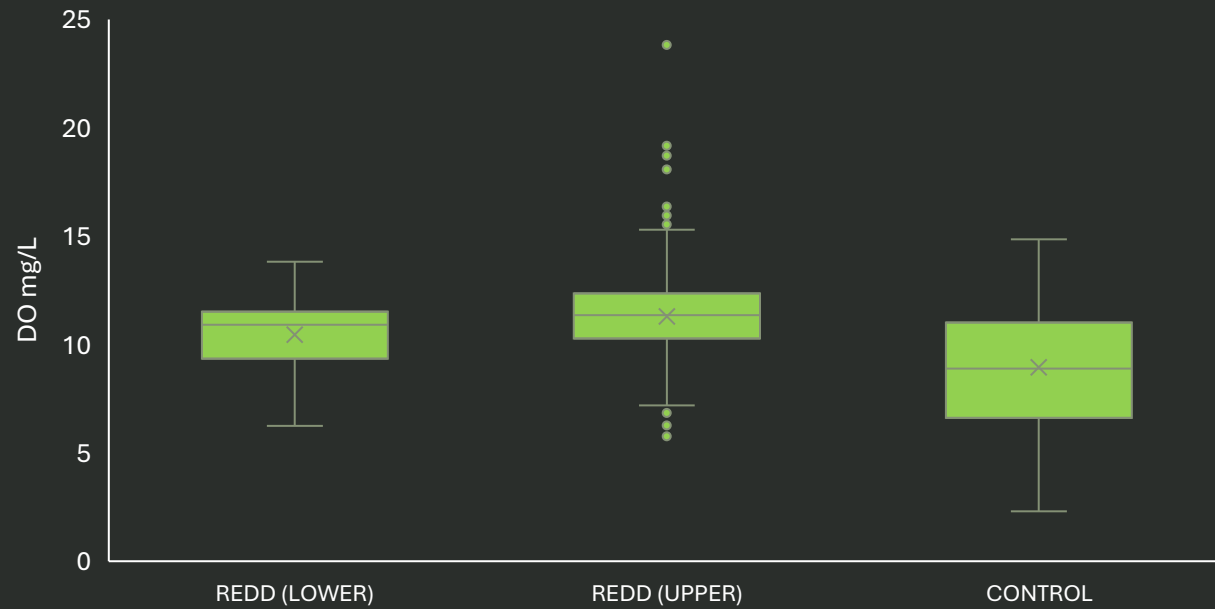


Classification	Size Class
Silt	
Sand	>2
Fine Gravel	2-8
Medium Gravel	11-16
Course Gravel	22.6-64
Small Cobble	90
Large Cobble	180
Organic	Woody debris, vegetation

Temperature Comparison



Dissolved Oxygen Comparison



Conclusion & Next Steps

- Although Upper Sixmile Lake is smaller, it is more important for salmon spawning than Lower Sixmile
 - 70-80% of salmon that enter the system travel into Upper Sixmile
 - 60% of spawning occurs in Upper Sixmile
- Supports management decisions
- Continued monitoring
- Sustaining ecosystem productivity



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