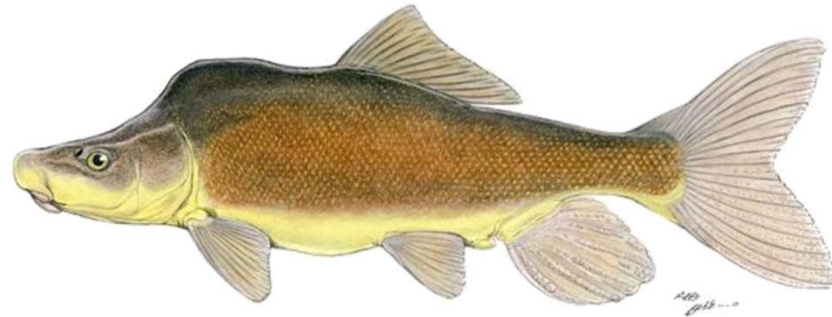


# Razorback Growth at Bubbling Ponds Fish Hatchery



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# Razorback Growth at Bubbling Ponds Fish Hatchery

- How can we produce more, larger fish at BPH?
- PIT tagged fish
- Growth rate in ponds
- Selecting different conditions



# Razorback Growth Rates

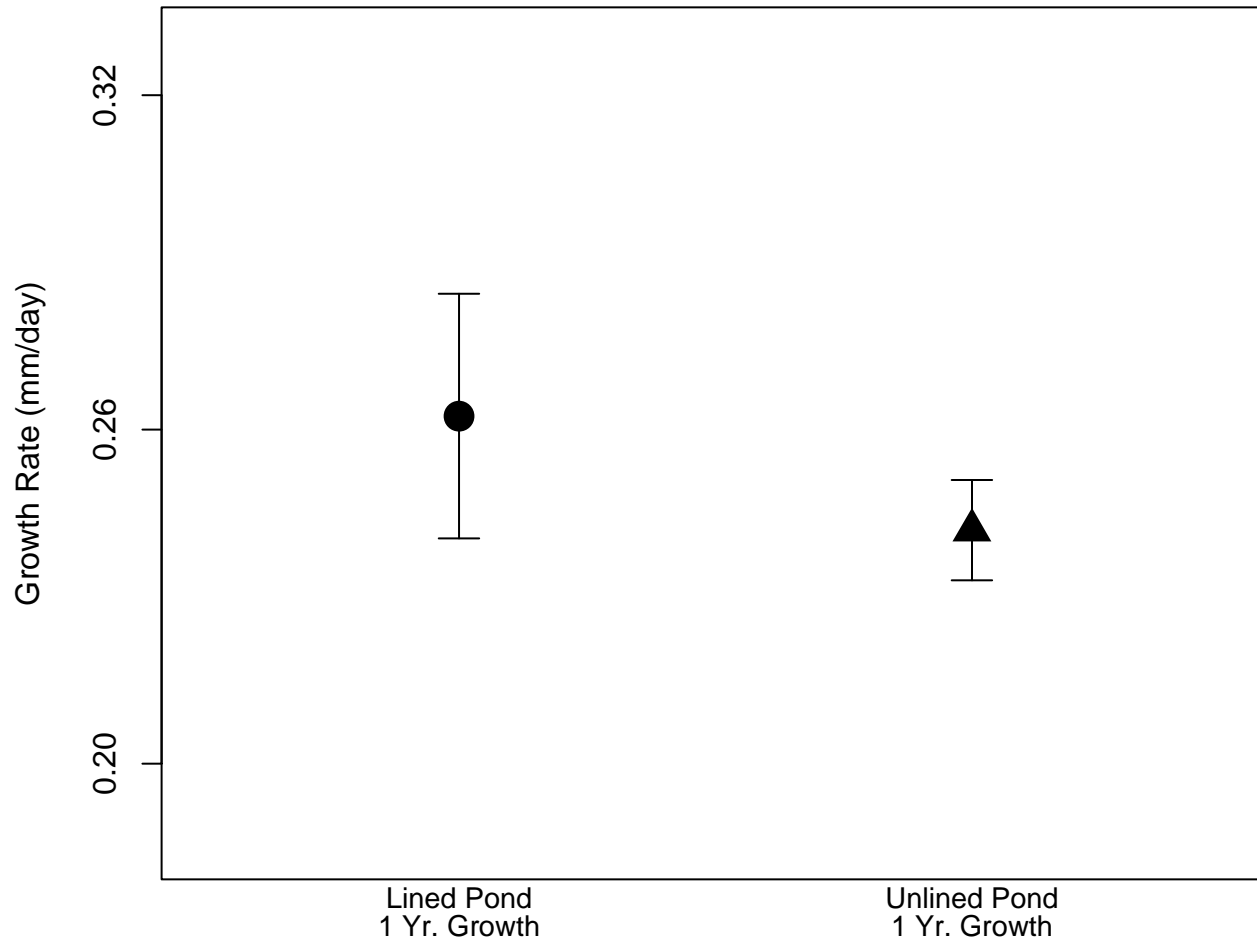
Year	Experimental Treatment	Growth rate (mm/day $\pm$ Std. Error)	Pond	Days in Pond	Average Fish Density (#/acre)
<b>2009</b>	<b>Growth of razorbacks in lined ponds</b>				
	7 Months Growth	0.280 $\pm$ 0.010	3 Upper	211	7100
	1 Year Growth	0.262 $\pm$ 0.022	3 Upper	378	7100
<b>2010</b>	<b>Effect of sorting on growth</b>				
	> 140 mm TL at sorting	0.279 $\pm$ 0.009	8 Upper	378	13200
	< 140 mm TL at sorting	0.289 $\pm$ 0.010	7 Upper	385	9200
<b>2010</b>	<b>Growth rate of large and small fish</b>				
	Fish 300+ mm TL	0.243 $\pm$ 0.010	3 Upper	257	7100
	Fish < 300 mm TL	0.262 $\pm$ 0.022	3 Upper	378	7100
<b>2010</b>	<b>Growth without Ich</b>	0.324 $\pm$ 0.013	8 Upper	125	10200
<b>2011</b>	<b>Growth rate after Ich re-detection</b>	0.218 $\pm$ 0.012	8 Upper	251	10200
<b>2011</b>	<b>Growth rate in unlined ponds</b>				
	Average	0.242 $\pm$ 0.009	1 Lower	358	4700
	Fish 300+ mm TL, Unlined Pond	0.217 $\pm$ 0.034	1 Lower	358	4700
	Fish < 300 mm TL, Unlined Pond	0.244 $\pm$ 0.009	1 Lower	358	4700

# Lining ponds does not reduce growth

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# Lining ponds does not reduce growth

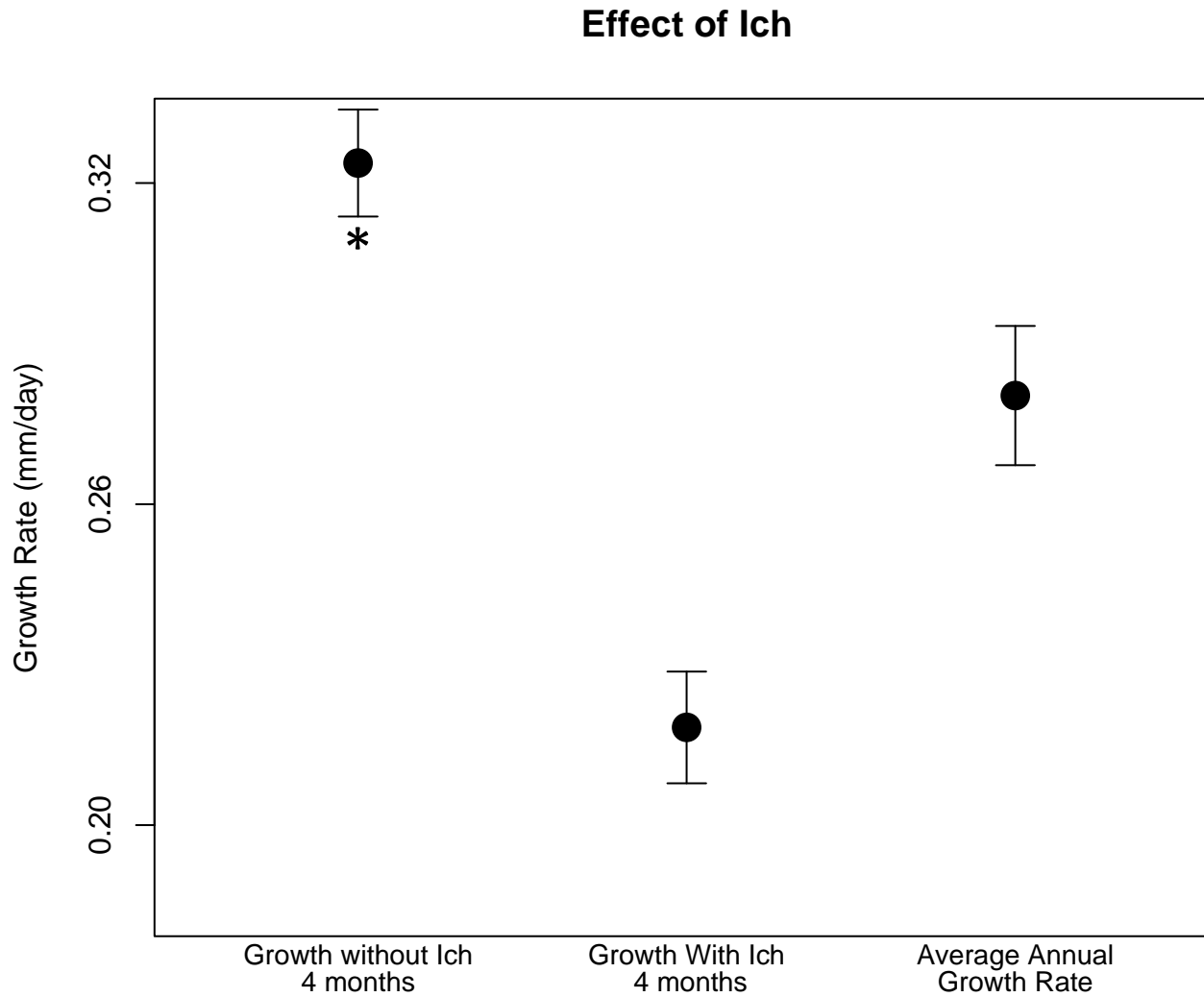
Lined vs Earthen Ponds, 1 year of growth



# Ich dramatically reduces growth

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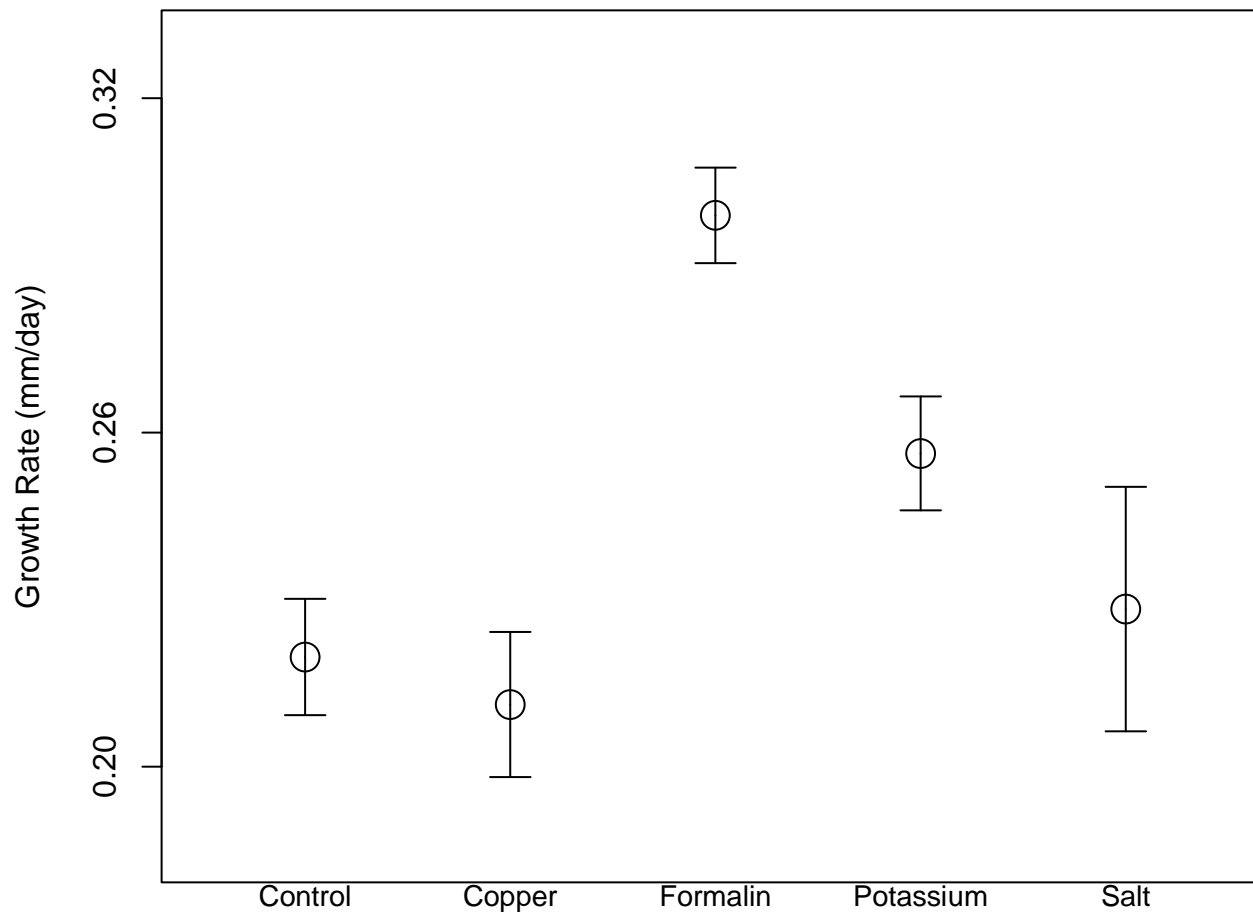
# Ich dramatically reduces growth



# Disease, Not Chemical Treatments

Ward, 2008

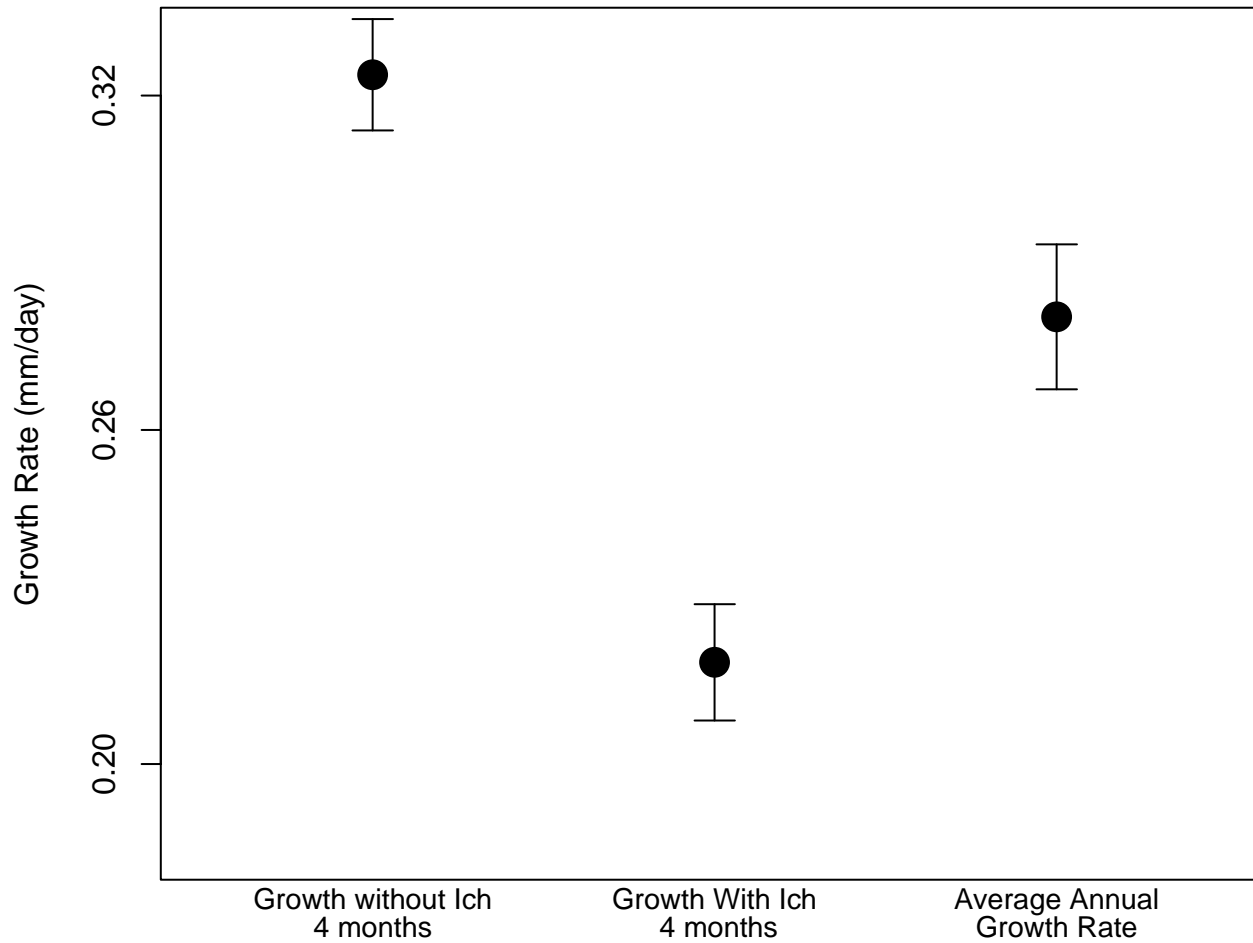
Effect of Disease Treatment





# Disease May Be Limiting Razorback Growth at BPH

Effect of Ich



# Ich May Be Limiting Razorback Growth at BPH

- Remove or reduce *Gambusia* populations at hatchery water source
- Permanently enclose springs and water conveyance ditch
- Density
- Predator avoidance training