

Threadfin Shad as Forage in Catfish Ponds

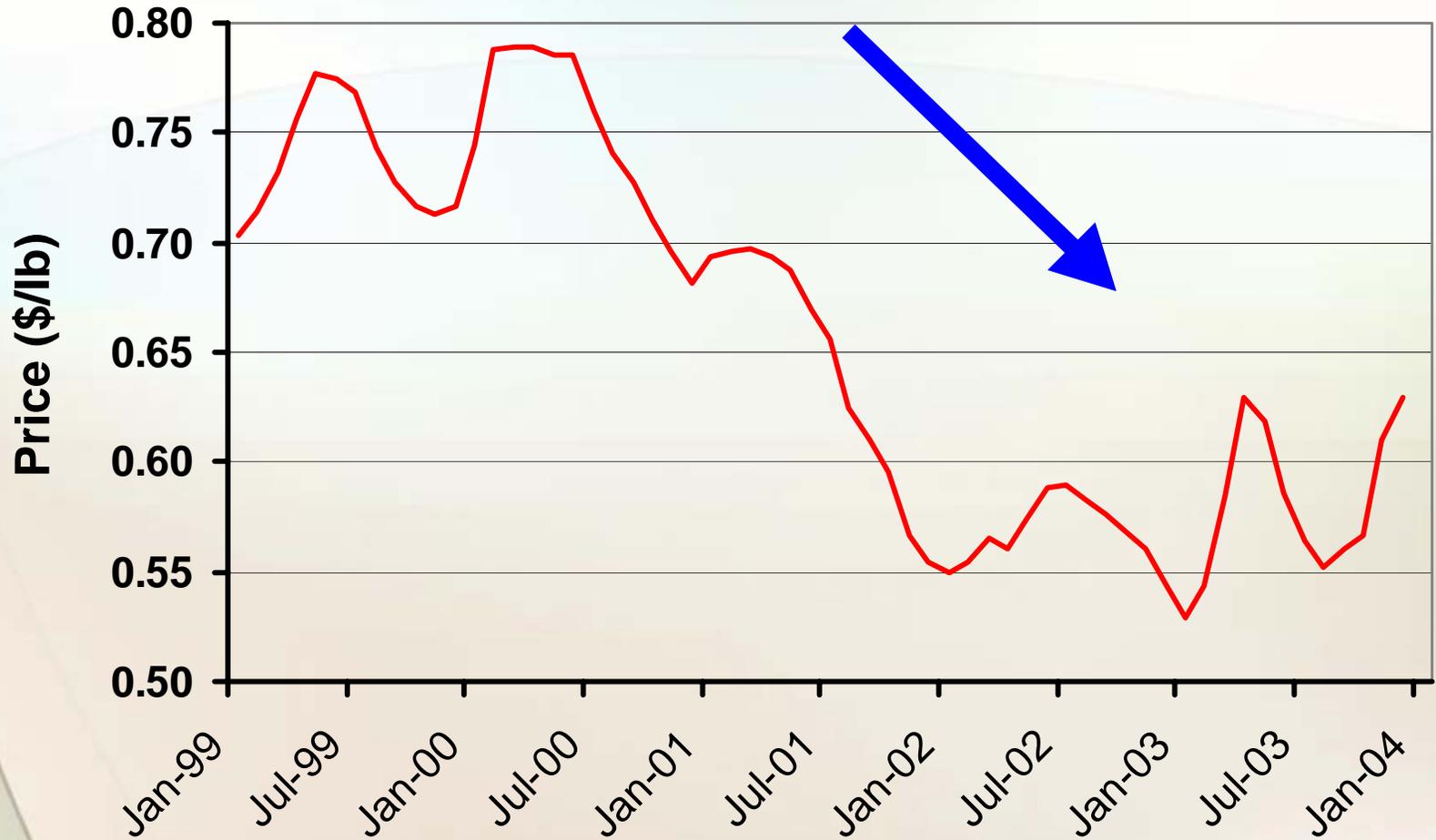
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Channel Catfish Prices



Introduction

- **Reduce channel catfish production costs.**
- **Feed is large component of variable costs.**
- **Forage fish have been used in catfish brood ponds.**
- **Lack of data for production ponds.**

Objective

- **To determine if channel catfish feeding frequency could be reduced from daily to once every three days in ponds co-stocked with threadfin shad.**

Materials and Methods - 1

- **Twelve 0.25-acre ponds.**
- **2 x 2 factorial arrangement:**
 - **Shad present or absent**
 - **Daily feed or every 3rd day feed.**
- **Pre-spawn, adult threadfin shad (*Dorosoma petenense*) stocked at 360 lb/ac.**
 - **Allowed 3 weeks to spawn.**



Materials and Methods - 2

- **Channel catfish (*Ictalurus punctatus*) stocked:**
 - **Stockers (0.77 lb average) at 4,500 lb/acre.**
 - **Fingerlings (0.06 lb average) at 6,000 fish/acre.**
- **32% protein feed fed to apparent satiation:**
 - **Daily or every 3rd day.**

Materials and Methods - 3

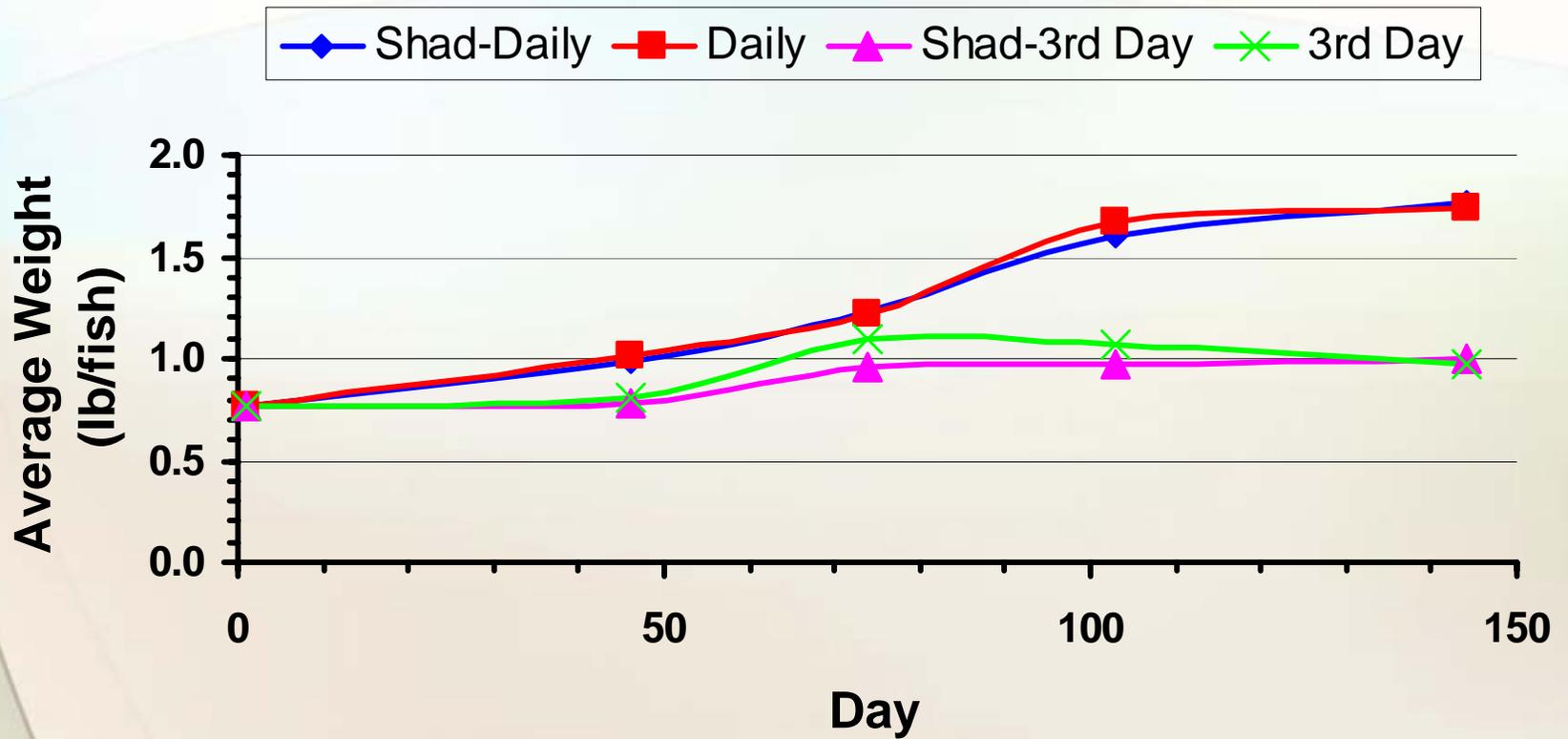
- $\frac{1}{2}$ hp electric paddlewheel aerator to maintain DO $>$ 3.5 mg/L.
- Ponds harvested after 144 days.



Results

		<u>Stocker Yield</u>		Net Total
		Gross	Net	
<u>Feed</u>	<u>Shad</u>	<u>(lb/acre)</u>		
Daily	No	9,823	5,311	6,818
Daily	Yes	10,118	5,620	6,575
3 rd Day	No	6,258	1,776	2,951
3 rd Day	Yes	6,320	1,816	2,204
<u>Daily v. 3rd Day</u>		**	**	**
<u>Shad v. No Shad</u>		NS	NS	NS

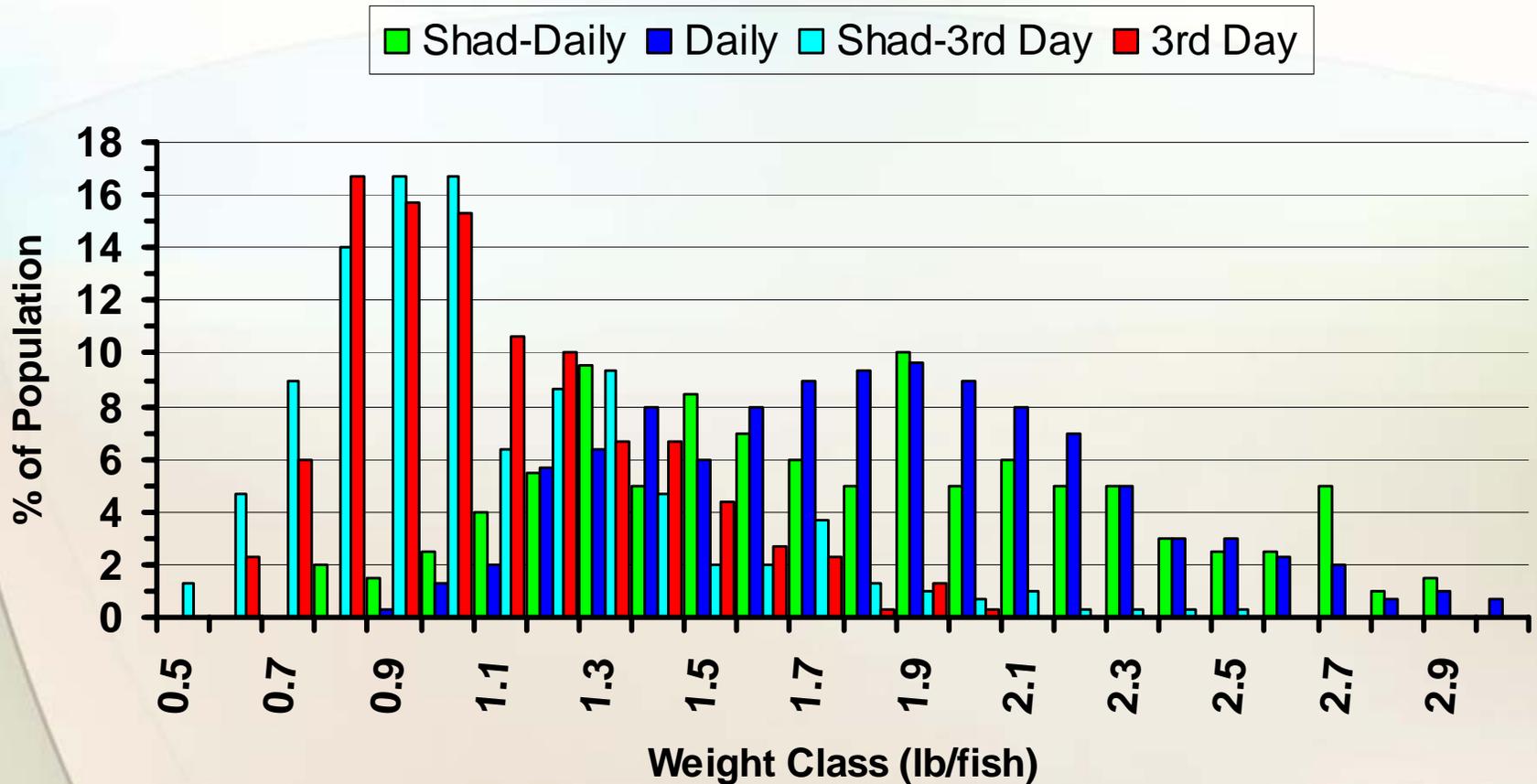
Stocker Growth



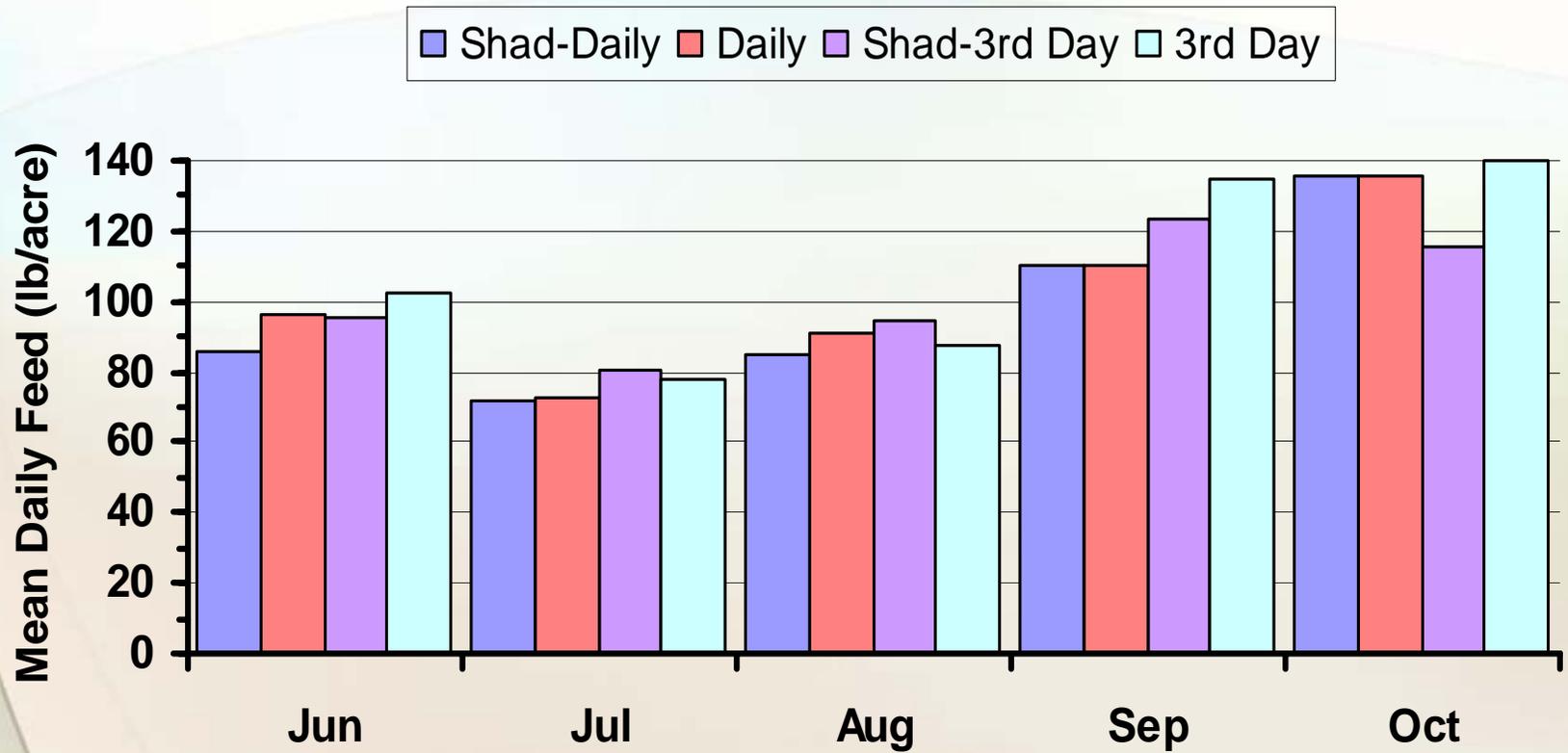
Mean Weights

Feed	Shad	Stocker (lb/fish)	Fingerling
Daily	No	1.74	0.31
Daily	Yes	1.76	0.29
3rd Day	No	0.98	0.12
3rd Day	Yes	1.00	0.12
Daily v. 3rd Day		**	**
Shad v. No Shad		NS	NS

Stocker Size Distribution



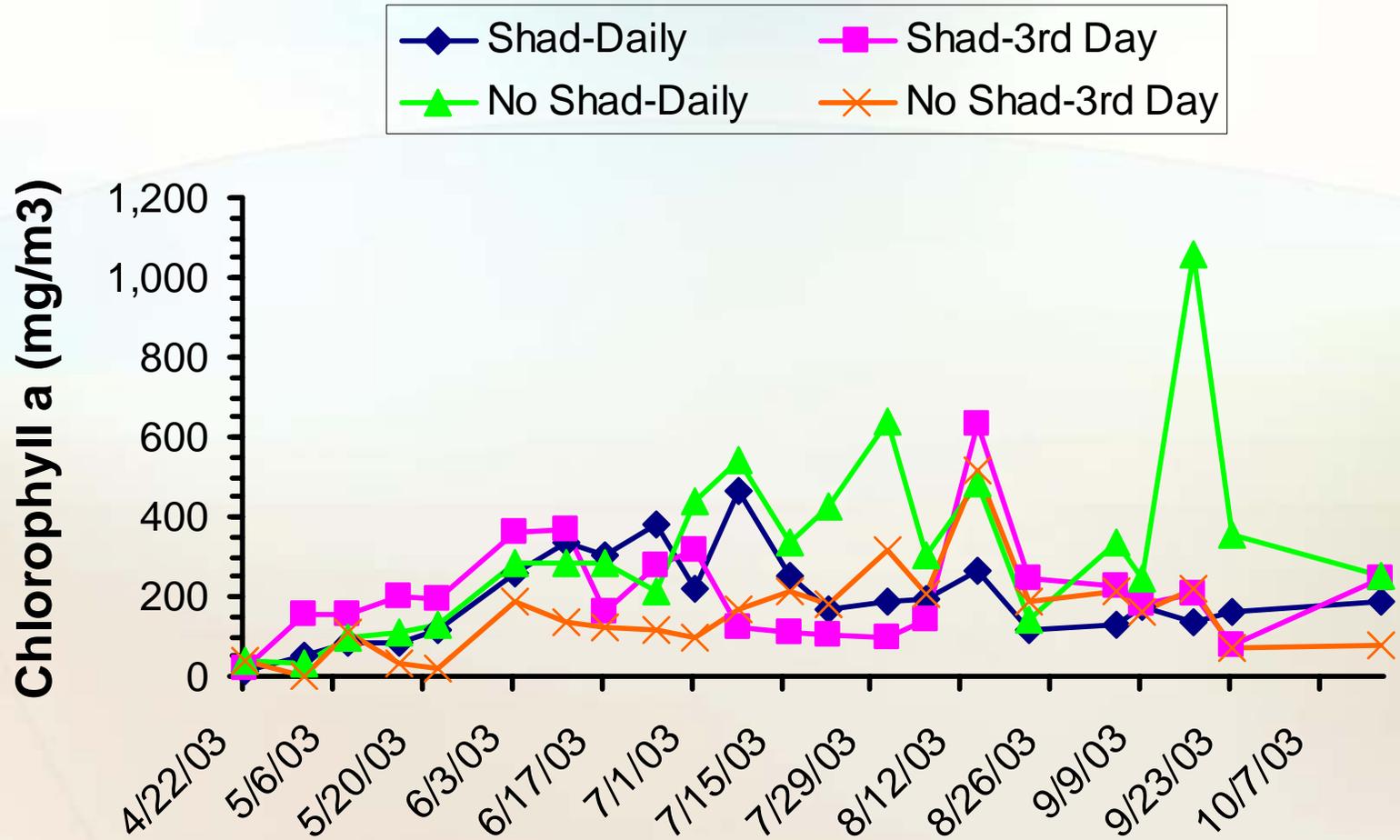
Feed Application



Feed

Feed	Shad	Feed (lb/acre)	FCR
Daily	No	11,287	1.73
Daily	Yes	10,943	1.67
3rd Day	No	4,316	1.65
3rd Day	Yes	4,080	1.86
Daily v. 3rd Day		**	NS
Shad v. No Shad		NS	NS

Chlorophyll *a*



Chlorophyll *a* (mg/m³) Treatment Comparisons

Feed Regime	Shad		p Value
	Present	Absent	
Daily	194.4	319.9	0.058
Every 3 rd Day	208.5	154.3	0.336

Conclusions

- **Shad did not substitute for feed.**
- **Feeding every 3rd day resulted in:**
 - **62% less feed used;**
 - **67% less stocker yield;**
 - **43% smaller fish;**
 - **88% of stockers < 1.5 lb each;**
 - **an FCR similar to daily feeding.**

Acknowledgements

- Thanks to Steve Lewis and the AR Game and Fish Commission for providing threadfin shad.
- The ARS and UAPB station crews are thanked for their collaboration.

