

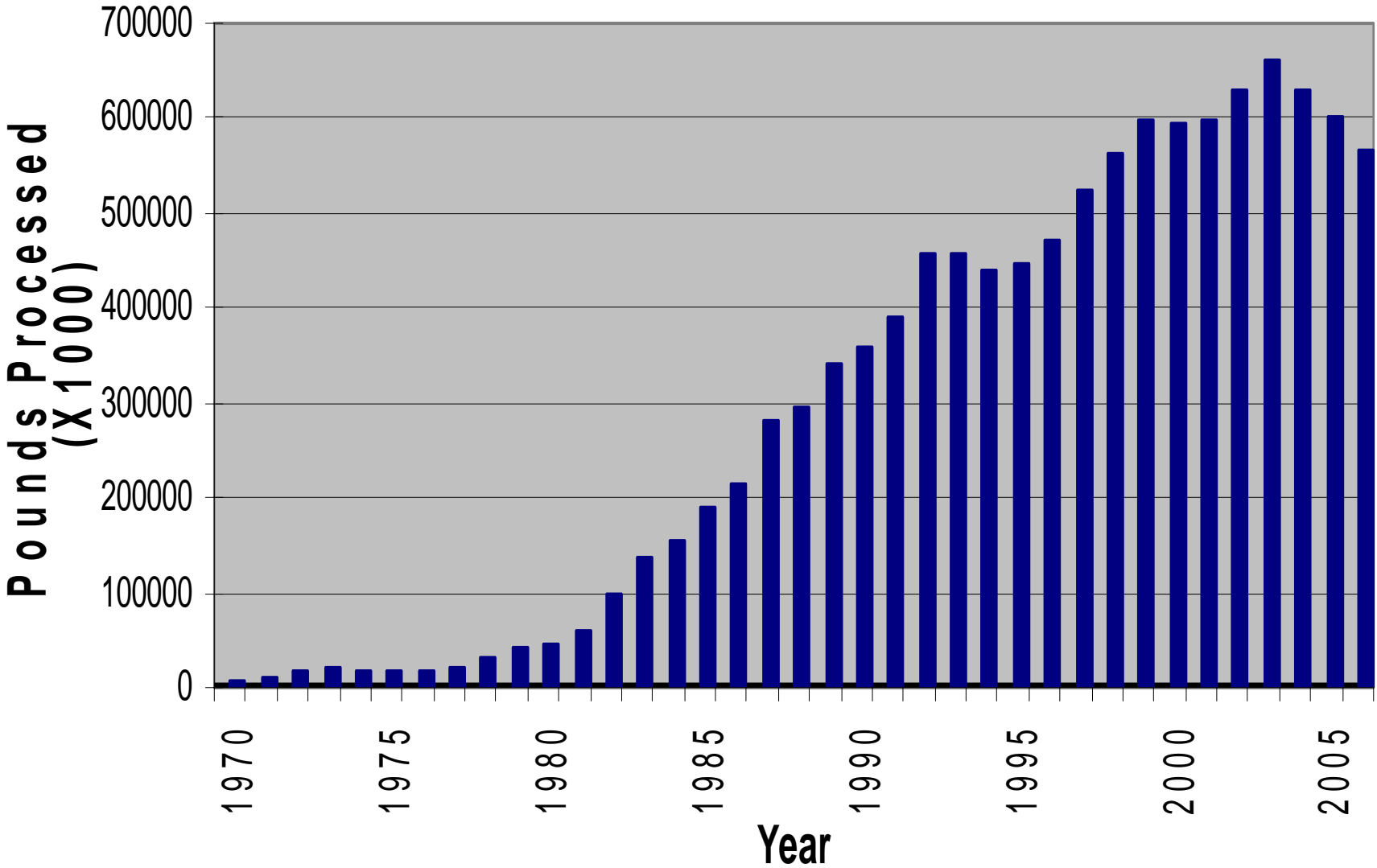
The Latest Developments in Pond Aquaculture

Les Torrans

**Nat'l Warmwater Aquaculture Center
USDA ARS Catfish Genetics Res. Unit
P.O. Box 38, Stoneville, MS 38776
Cell: 662-390-3882
E-mail: LTorrans@ars.usda.gov**



U.S. Farm-Raised Catfish Processed



World Market

Fish are

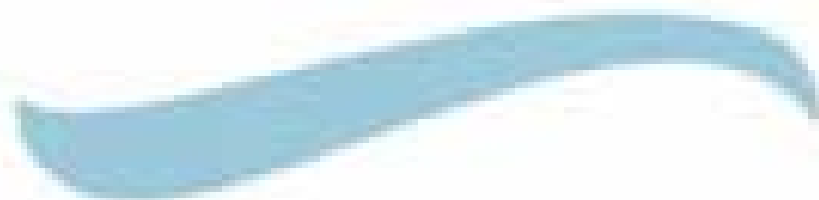
Commodities

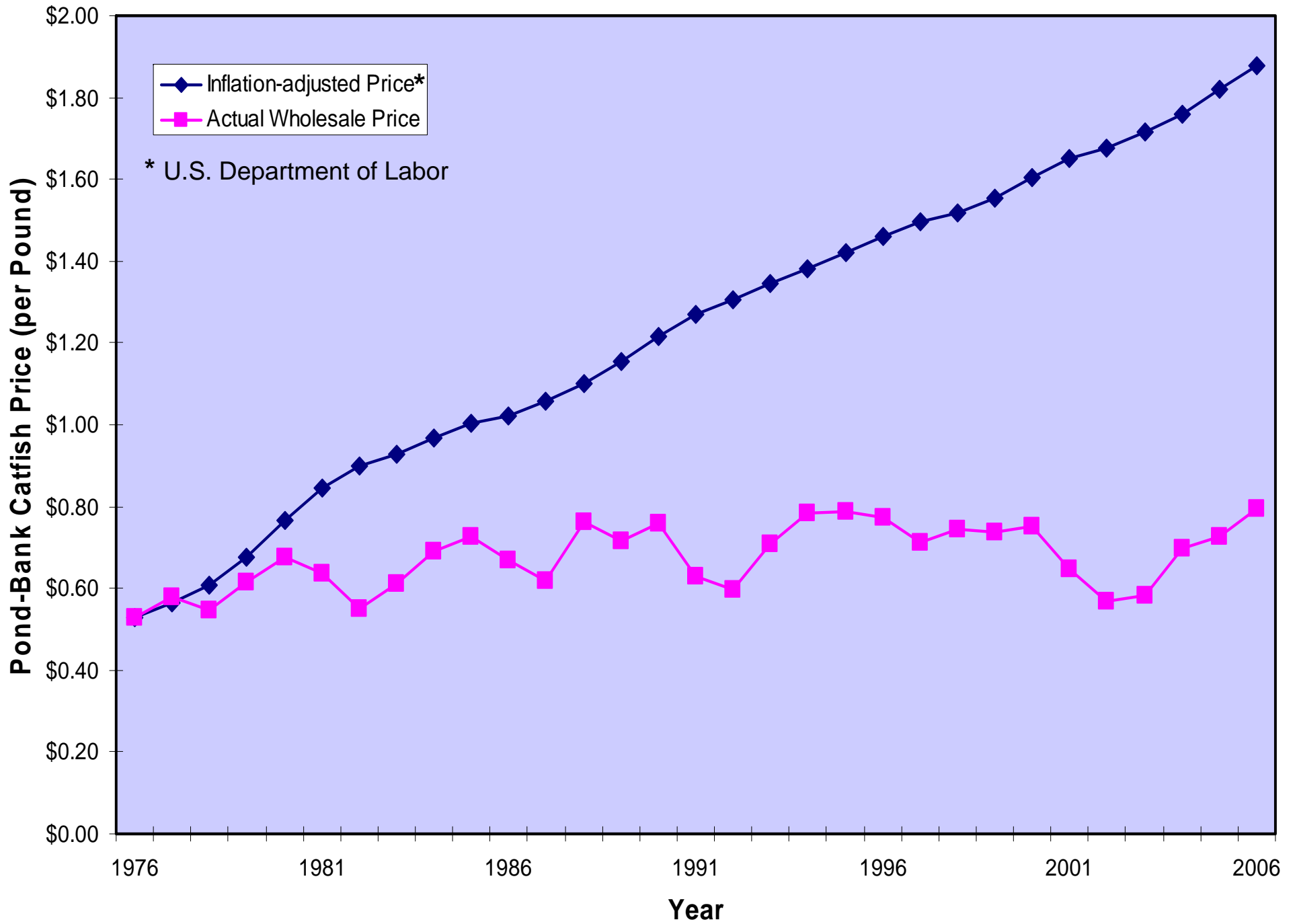




YOU'RE GONNA LOVE IT.

THE CATFISH
INSTITUTE





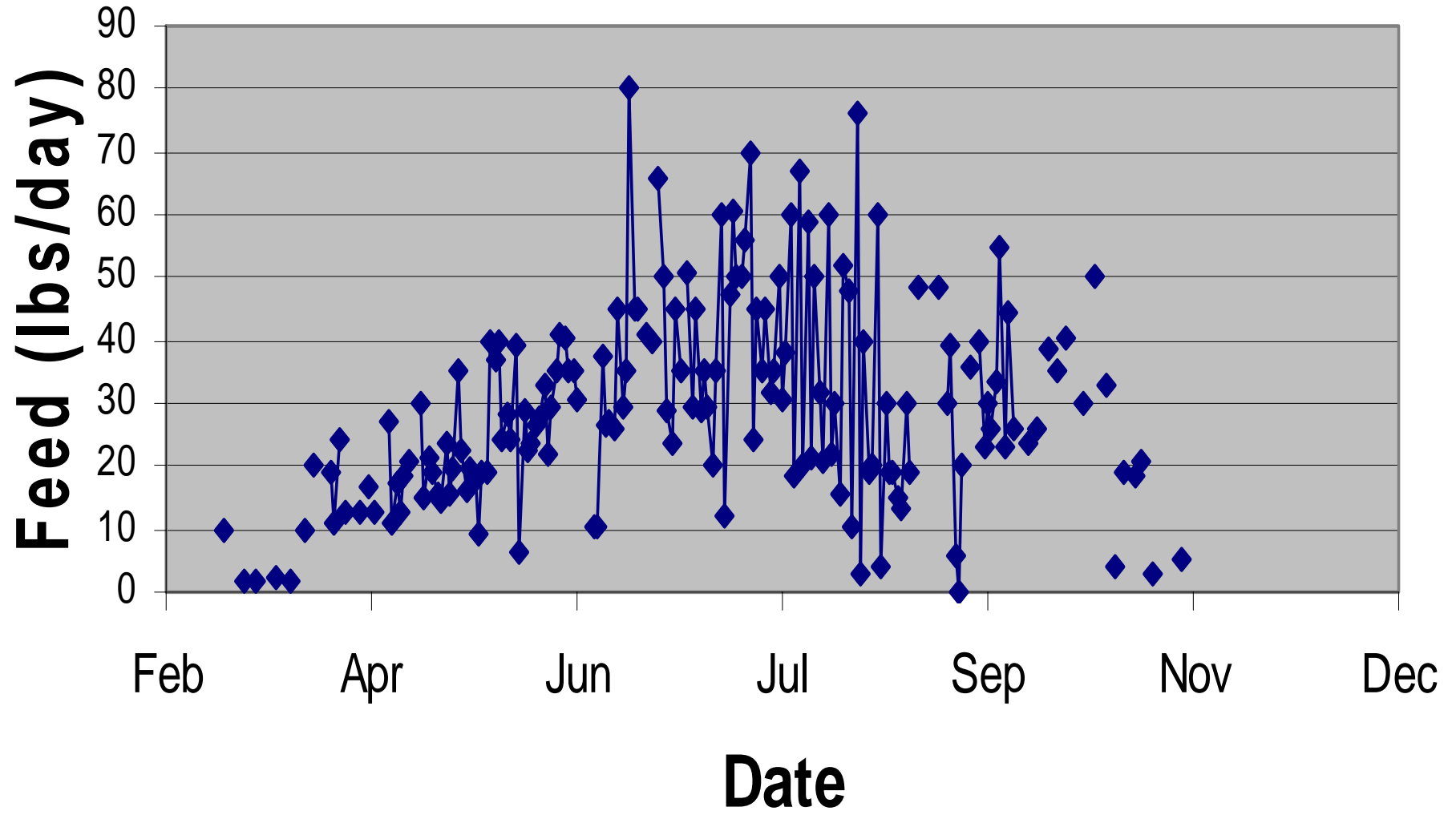
Reducing Production Costs

- Keep Records
- Learn
- Know your resources
- Get “on-line”
- Support your association

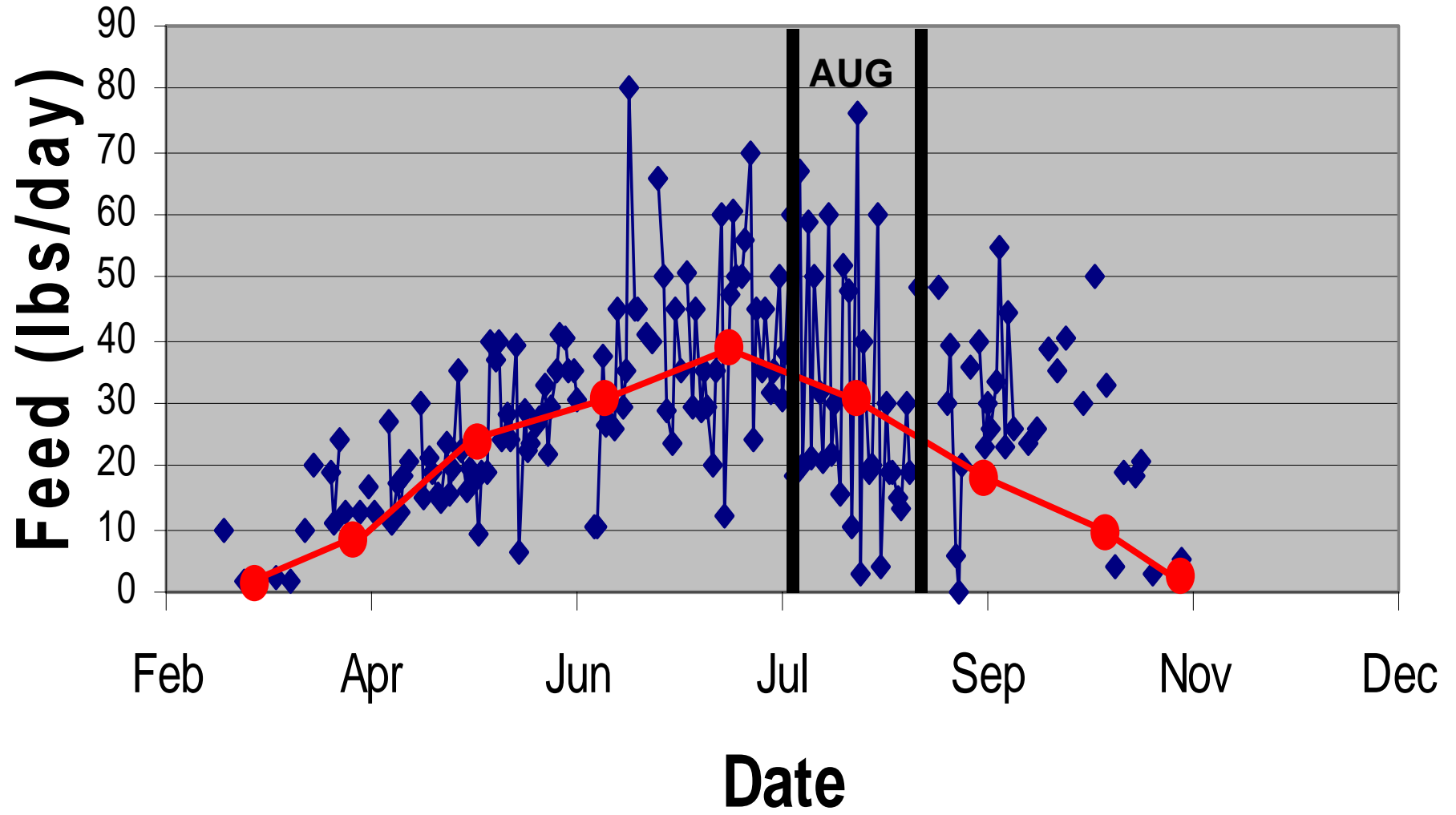
Reducing Production Costs

- Treat every pond/tank as an individual
 - Feed

Daily Feed Consumption



Daily Feed Consumption



Reducing Production Costs

- Treat every pond/tank as an individual
 - Feed
 - Off-flavor
 - Disease

Reducing Production Costs

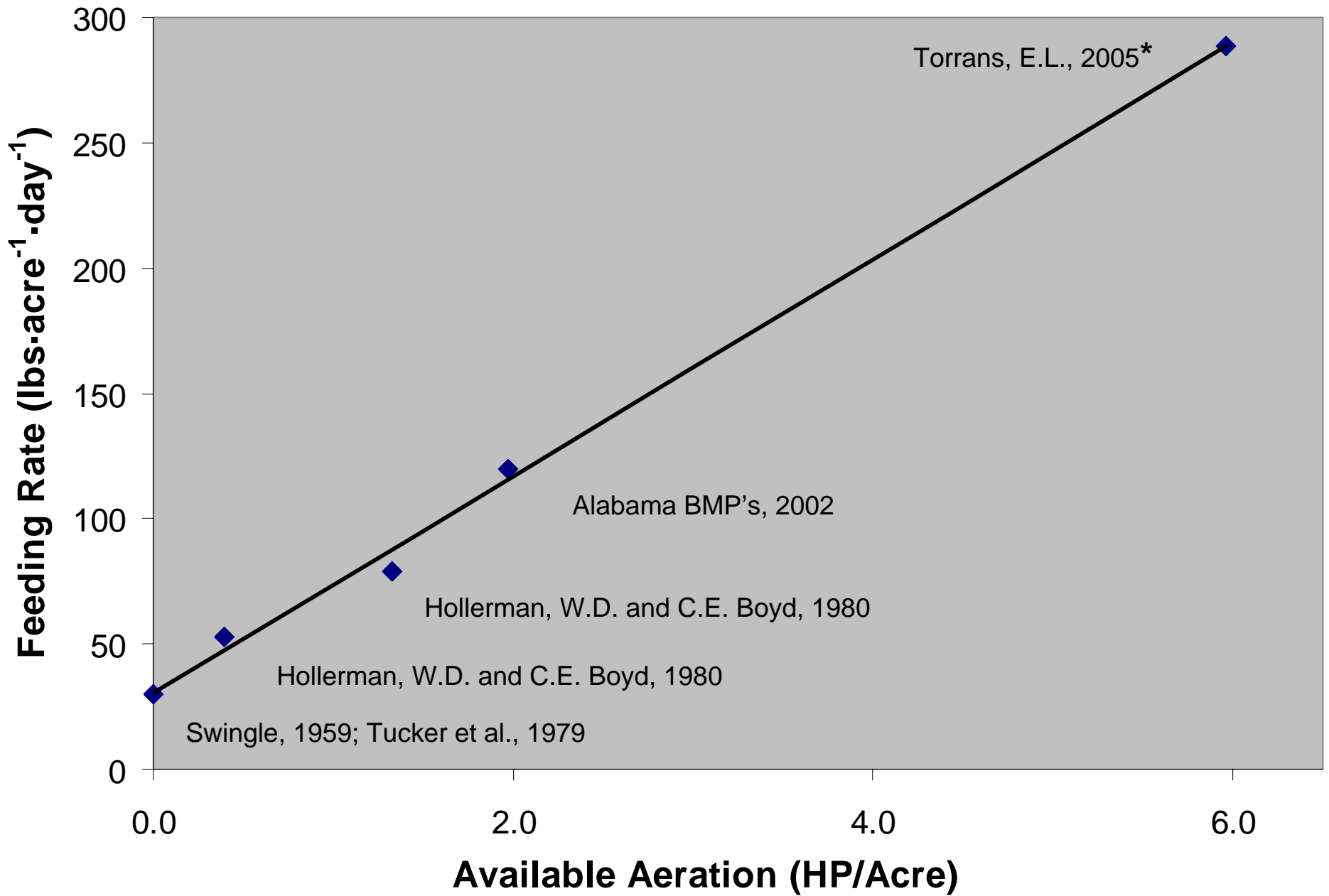
- Owner/feeder
- Increase pond depth

After 15 years of continuous use



Reducing Production Costs

- Owner/feeder
- Increase pond depth
- Increase aeration/acre



* 2005. North American Journal of Aquaculture 67(4):275-288.

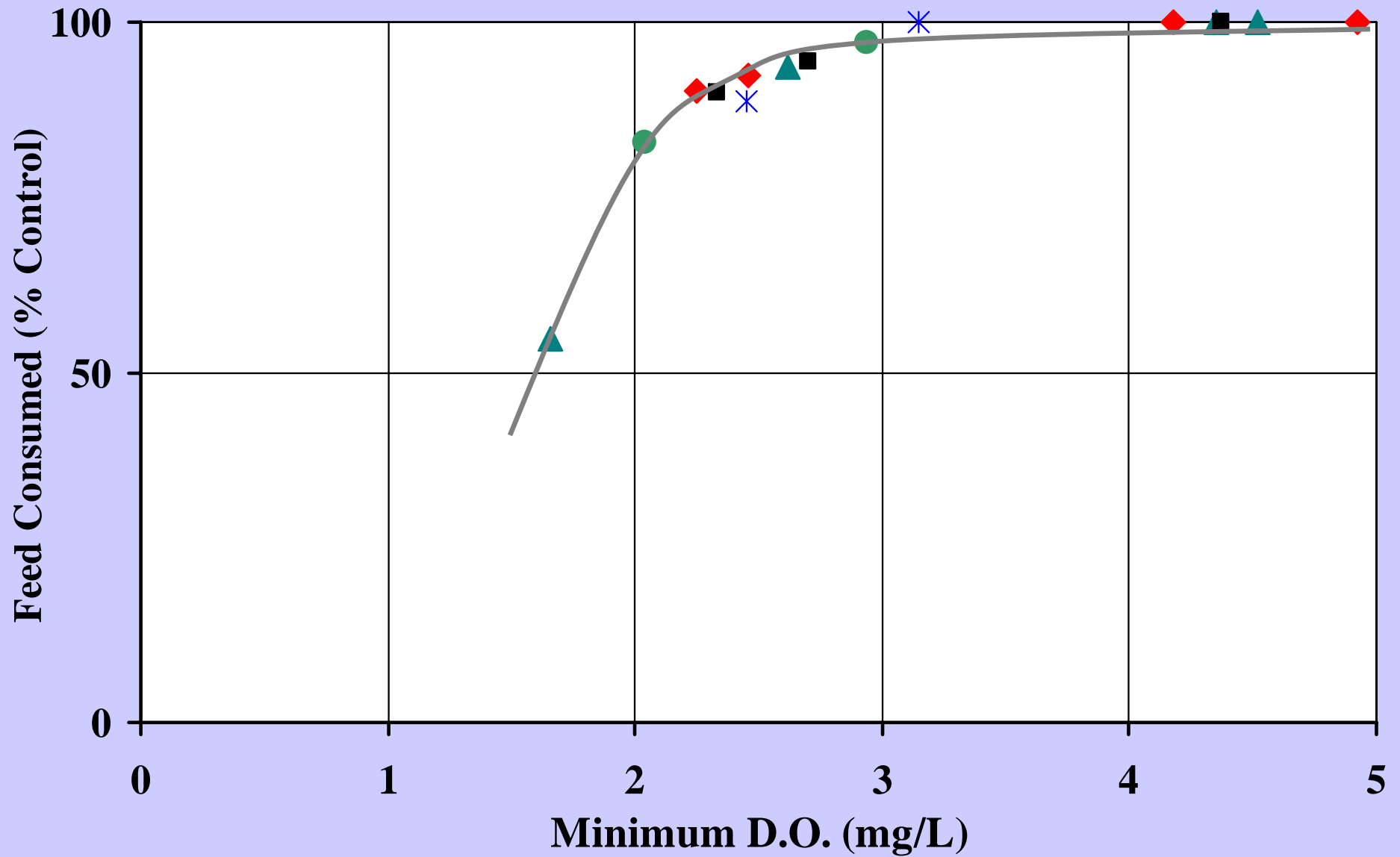
Reducing Production Costs

- Owner/feeder
- Increase pond depth
- Increase aeration/acre
- Gravel levee(s)
- Monitor water quality

Reducing Production Costs

- Increase morning D.O.

Torrans - Catfish Oxygen Studies



Reducing Production Costs

- Increase morning D.O.
- Treat off-flavor
- Spring prophylaxis (copper)
- Threadfin shad

Reducing Production Costs

- Use certified scales
- “Zipper” sock

The “Zipper” Sock

Old Sock



Rear

Dimensions = 4x4 ft

“Zipper” Sock



Rear

Dimensions = 12x4 ft

Reducing Production Costs

- Use certified scales
- “Zipper” sock
- “Sock-saver”



Reducing Production Costs

- Use certified scales
- “Zipper” sock
- “Sock-saver”
- In-pond grader

In-Pond (“Heikes”) Grader

- Easily incorporated into standard harvest procedure
- Adjustable grader-bar spacing
- Able to grade fingerlings and foodfish
- 9,000 lbs foodfish/min
- Increased weight of fish within processor specs by 12.5%



Reducing Production Costs

- Bird harassment





Reducing Production Costs

- Bird harassment
- Automation
- Salt ponds
- Count mortalities
- “Fish” farmers

“Over the Horizon”

- New Systems/Equipment
- “New” Species/Genetics
- Disease Treatments
- Live/Fresh Products
- Green/Organic Labels

WORST CHOICES

- Caviar (wild)
- Chilean seabass/toothfish
- Cod, Atlantic
- Grouper
- Halibut, Atlantic
- Marlin
- Monkfish/goosefish
- Orange roughy
- Rockfish/rock cod (Pacific)
- Salmon, Atlantic (farmed)
- Shark
- Shrimp/prawns (imported)
- Skate
- Snapper
- Sturgeon (wild)
- Swordfish (imported)
- Tilefish
- Tuna, bluefin

● indicates fish that are high in mercury or PCBs. Details at www.oceansalive.org/eat.cfm

P O C K E T

SEAFOOD SELECTOR



Buying guide
for eco-friendly fish

e

ENVIRONMENTAL DEFENSE

finding the ways that work

BEST CHOICES

- Abalone (U.S. farmed)
- Anchovies
- Arctic char (farmed)
- Catfish (U.S. farmed)
- Caviar (U.S. farmed)
- Clams (farmed)
- Crab, Dungeness
- Crab, snow (Canada)
- Crab, stone
- Crawfish (U.S.)
- Halibut, Pacific (Alaska)
- Herring, Atlantic (U.S., Canada)
- Mackerel, Atlantic
- Mahimahi (U.S. Atlantic)
- Mussels (farmed)
- Oysters (farmed)
- Sablerfish/black cod (Alaska)
- Salmon, wild (Alaska)
- Salmon, canned pink/sockeye
- Sardines

- Scallops, bay (farmed)
- Shrimp, northern (Canada)
- Shrimp, Oregon pink
- Shrimp (U.S. farmed)
- Spot prawns
- Striped bass (farmed)
- Sturgeon (U.S. farmed)
- Tilapia (U.S.)

● indicates fish that are high in omega-3 fatty acids **and** low in environmental contaminants. For details, or for information on hundreds of other fish, visit www.oceansalive.org/eat.cfm



© June 2006 Environmental Defense
Cover illustration: www.chartingnature.com



from
THE Green GUIDE

P.O. Box 567 Prince Street Station, NY, NY 10012
(212) 598-4910 . www.thegreenguide.com

YES FISH	SOMETIMES FISH	NO FISH
Low Mercury, Not Overfished or farmed destructively	Recovering Populations and/or moderate mercury (once/month)	Overfished, farmed destructively, high bycatch or moderate to high mercury
→ Abalone (farmed)	Arctic char	Albacore Tuna MM
→ Anchovies	Blue crab (Gulf Coast) M	Bluefin Tuna MM
→ Catfish (US farmed)	Blue Mussel M	Caviar (Russian or Iranian)
→ Caviar (US or French farmed)	Dungeness crab M	Chilean sea bass (toothfish)
→ Clams (farmed)	King crab (Alaskan)	Cod (Atlantic) M
→ Crawfish	Snow crab	King Crab (imported)
Herring	Cod (Pacific) M	Flounder (Atlantic)
Hoki	Flounder (Pacific)	Great Lakes salmon M
→ Rainbow Trout (farmed)	Halibut (Alaskan) M	Groupers
Salmon (wild Alaskan & Californian)	Mahimahi M	Haddock
Sardines	Eastern Oyster M	Halibut (Atlantic) MM
Squid (Pacific)	Pollak M	King mackerel MM
→ Striped bass (farmed)	Sablefish/black cod M	Marlin MM
→ Sturgeon (farmed)	Sanddabs	Monkfish
	Scallops	Orange roughy
	Sole (Pacific)	Oysters (Gulf Coast) MM
	Tilapia	Pike MM
	Tuna (canned light) M	Salmon (farmed or "Atlantic") PCBs
		Sharks MM
		Shrimp
		Skate
		Snappers
		Soles (Atlantic)
		Swordfish MM
		Tilefish (aka golden bass, golden snapper) MM

Kroger is Your Organic Place



2 \$1
lbs for

**ORGANIC
DOLE BANANAS**
Sold by the pound



2 \$4
for

**ORGANIC BROCCOLI
OR ORGANIC WHITE
CAULIFLOWER**



\$4⁴⁹

**FOXY
ORGANIC
PARTY TRAY**
1 lb Pkg

Organic Features May Not Be Available in All Stores

ORGANIC PRODUCTION OF CHANNEL CATFISH

Menghe H. Li, Edwin H. Robinson, Charles
C. Mischke, Eugene L. Torrans, and Brian
G. Bosworth

(at Delta-Western Research Center)

2006. North American Journal of
Aquaculture 68:53-62



Itorrans@ars.usda.gov
662-390-3882