

Market Forecasting: Developing Market Forecasts for the Global Shrimp Industry

James L. Anderson ila@uri.edu

& Diego Valderrama

Department of Environmental and Natural Resource Economics

University of Rhode Island

www.uri.edu/cels/enre

www.seafoodreport.com

Economic Analysis and Expected Prices

- Summarize some of the key information
- Develop an objective model for price expectations conditioned on expected supply

Current Factors

Production

- **Disease Concerns – more uncertainty/increase cost**
- Energy – increasing cost
- Shift to White Shrimp – lower cost/lower risk
- Quality Pls / Broodstock – Increase cost/increase
- Health, Safety, Antibiotics – Increase uncertainty/raise costs
- Environmental Concerns - Increase uncertainty/raise costs
- Quality control of raw shrimp (esp. taste) – increase/decrease demand

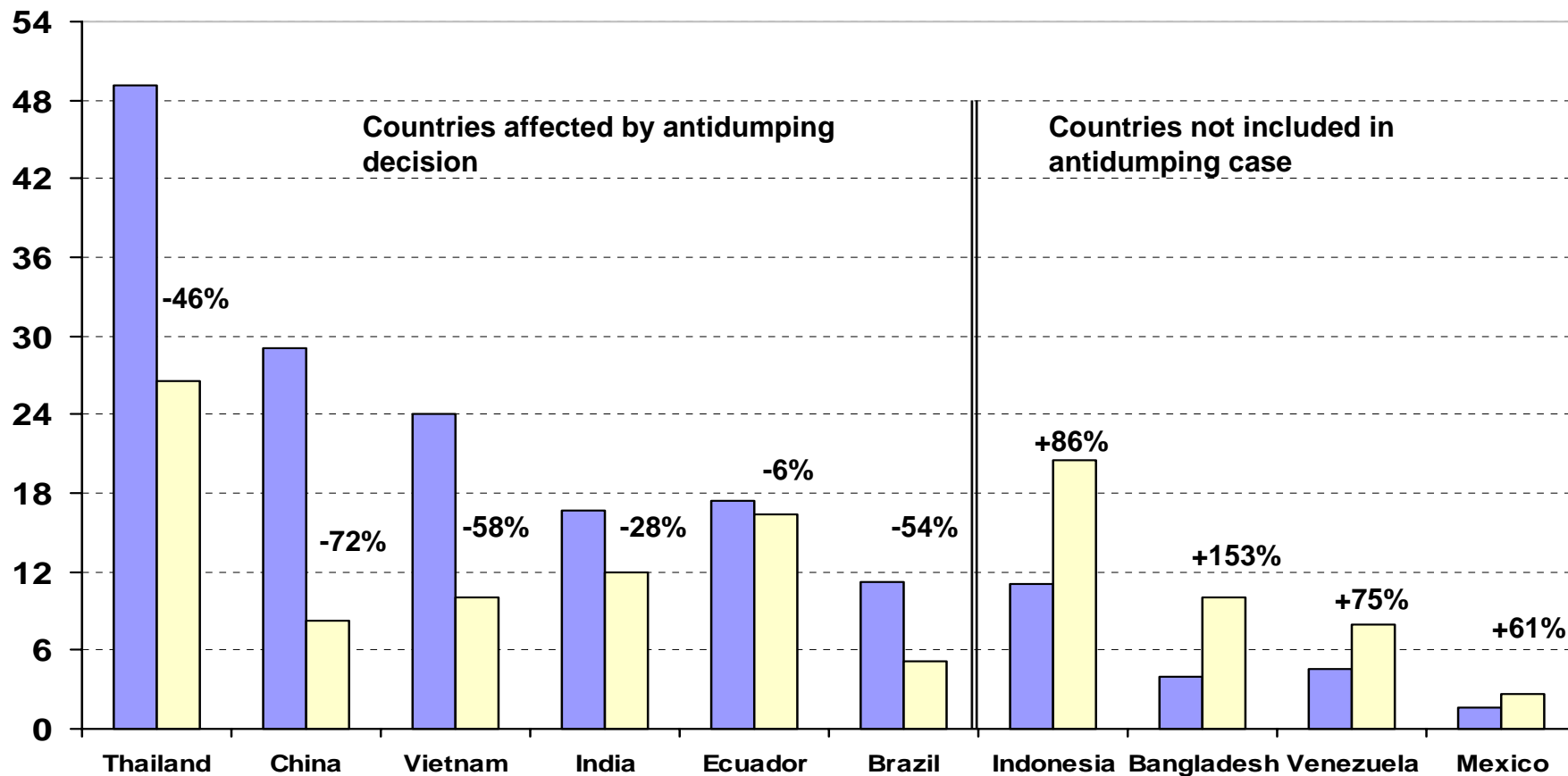
Current Factors

Legal & Regulatory

- **Antidumping & other Trade Barriers – Distorts Market/Creates Perverse Incentives/Increasing Risks & Cost/Wasteful**
- Health & Safety - Increase costs/ increase or decrease demand
- Labeling/COOL - Increase costs/ increase or decrease demand
- Antibiotics Restrictions - Increase costs/ increase or decrease demand
- Environmental Concerns – May Increase costs/ increase or decrease demand
- Fraud

US Shrimp Imports by Country of Origin

Thousand MT



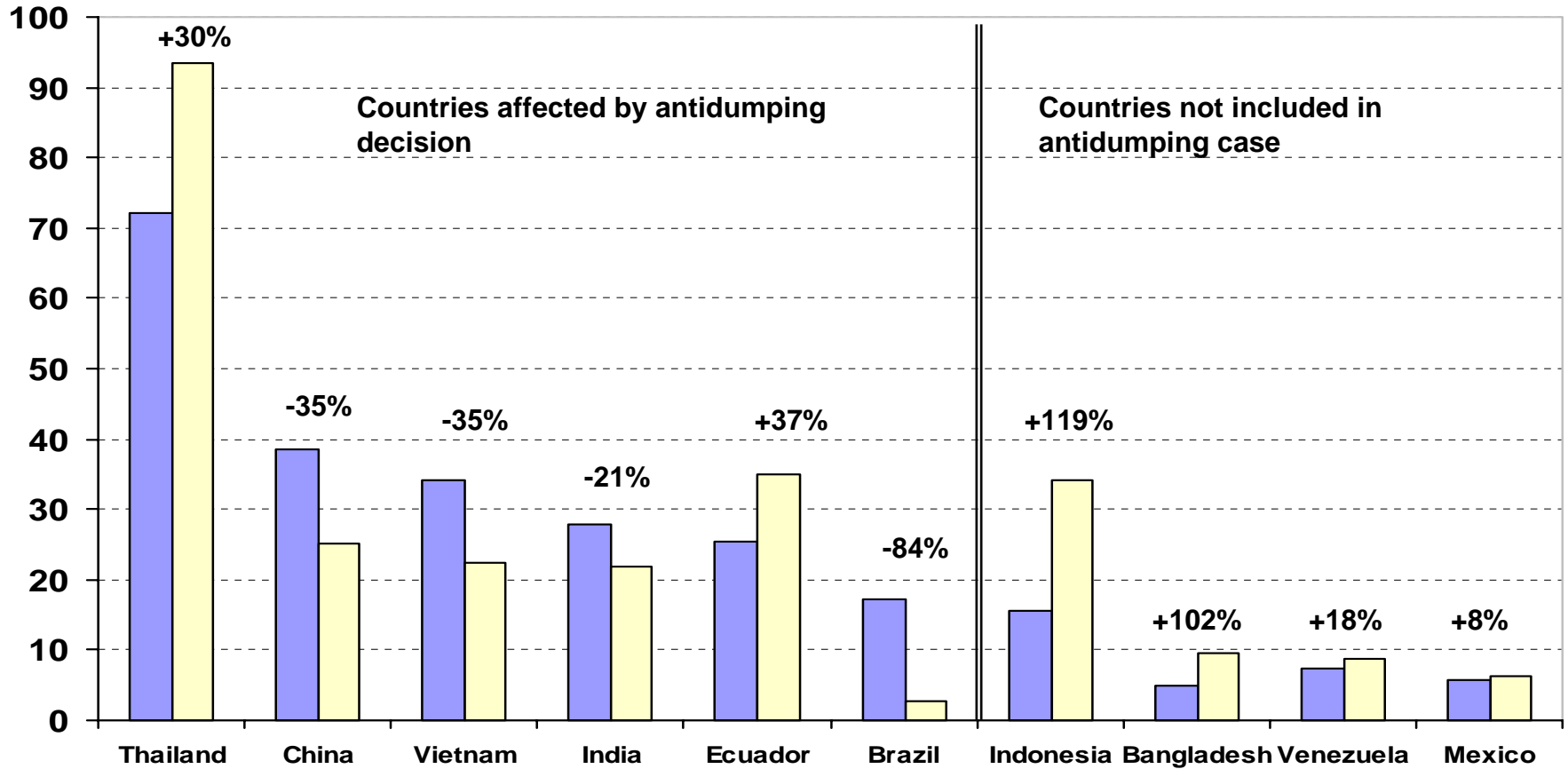
Source: SeafoodReport.com (2004).

■ April-August 2003

■ April-August 2004

US Shrimp Imports by Country of Origin

Thousand MT



Source: SeafoodReport.com (2005).

■ January-August 2003

□ January-August 2005

Current Factors

Shocks - Natural

- Tsunami
 - Reduce supply
- Hurricanes - Katrina, Rita, etc.
 - Reduce Supply/ Increase/Decrease Demand
- Bird Flu Fear – Potential Pandemic
 - May Increase Demand

Current Factors

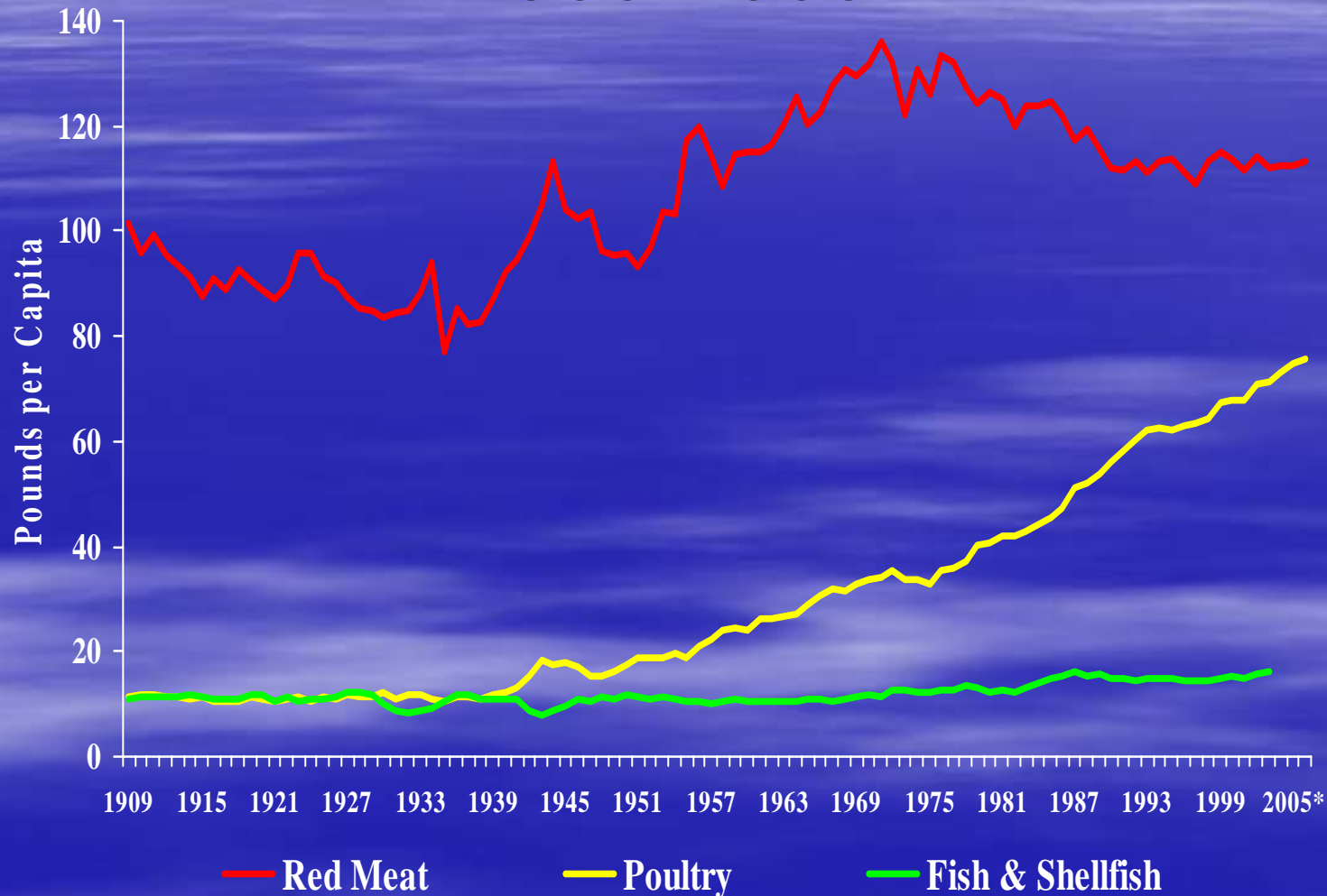
Post-Production

- **China – Growing Demand**
- Exchange rates - +/-
- Growth in US Retail
- Economic Recovery & Changing Preferences in Japan
- Low/no Profit
- Consolidation Pressure
- **More Value-Added**

What about the Marketing?

- An industry - like shrimp - with stable growth & relatively low prices in a perfect for Market Development & Innovation

U.S. Per Capita Consumption of Red Meat, Poultry, and Fish and Shellfish, 1909-2005



Seafood Consumption is Concentrating in Fewer Species

Edible kg per Capita

	1987		2003	% change	
71%	1 Tuna	1.59	Shrimp	1.81	+74
	2 Shrimp	1.04	Tuna	1.54	-3
	3 Cod	0.76	Salmon	1.01	+403
	4 AK Pollock	0.40	AK Pollock	0.77	+93
	5 Flatfish	0.33	Catfish	0.52	+91
	6 Clams	0.30	Cod	0.29	-62
	7 Catfish	0.27	Crab	0.28	+84
	8 Salmon	0.20	Tilapia	0.25	N/A
	9 Crab	0.15	Clams	0.24	-21
	10 Scallops	0.15	Scallops	0.15	0
	Other	2.16	Other	0.55	-75
	Total	7.35	Total	7.40	+1

Sources: Fisheries of the United States (2003) and NFI (2005).

Practical Issues

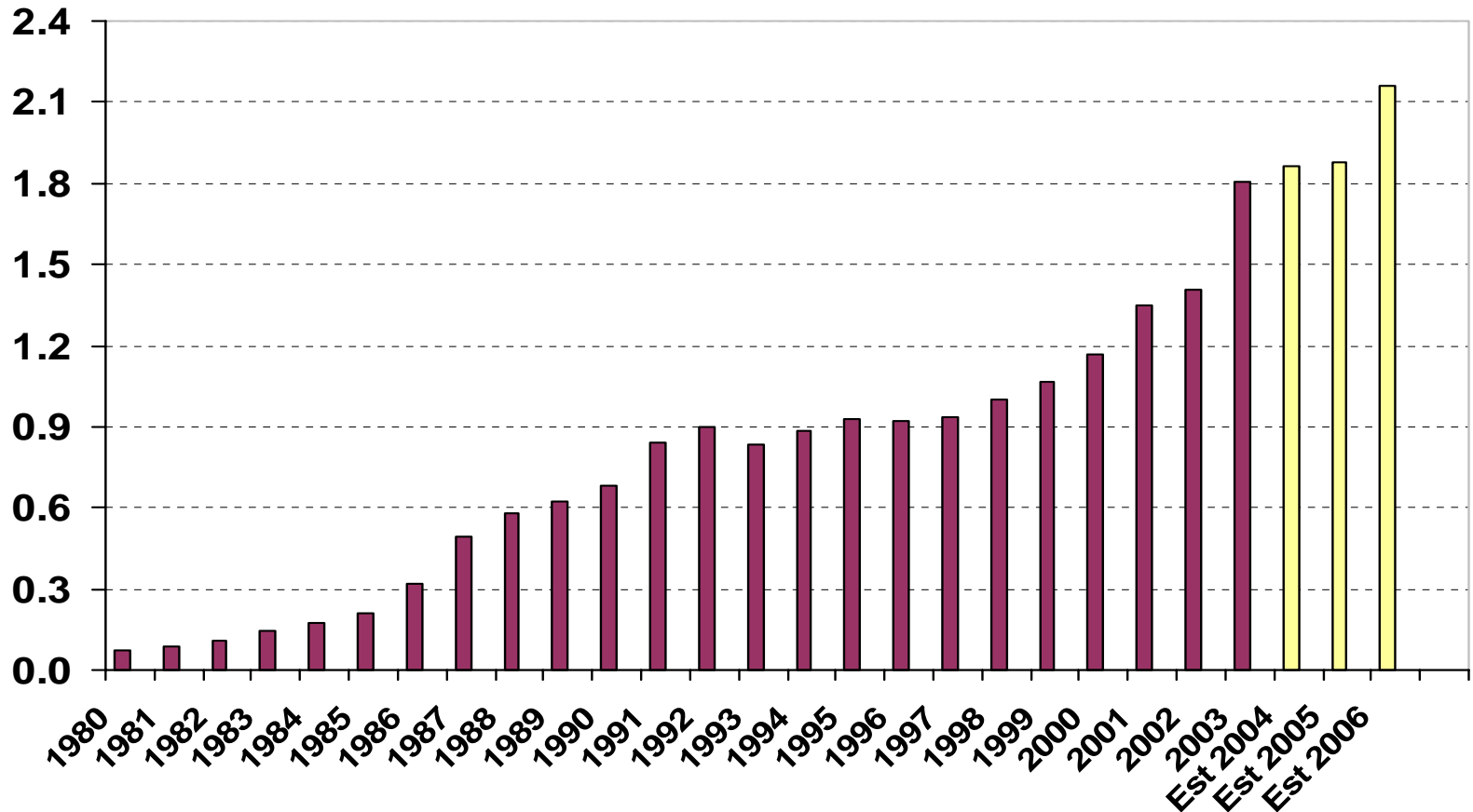
- The shrimp market is complex, diverse, dynamic and fragmented
- Data quality is **POOR**
- Multiple species, sizes, many suppliers and consumers
- Supply dynamics dominate Demand dynamics
- US, Japan and EU account for the bulk of international trade
- Aquacultured shrimp dominate international trade
- Antidumping measures – Create perverse incentives and market distortion
- Energy costs, Tsunnani, Katrina, Disease, Bird Flu

Expected Supply

**Considerable Range and Uncertainty
Expected Supply Estimates
Esp. China**

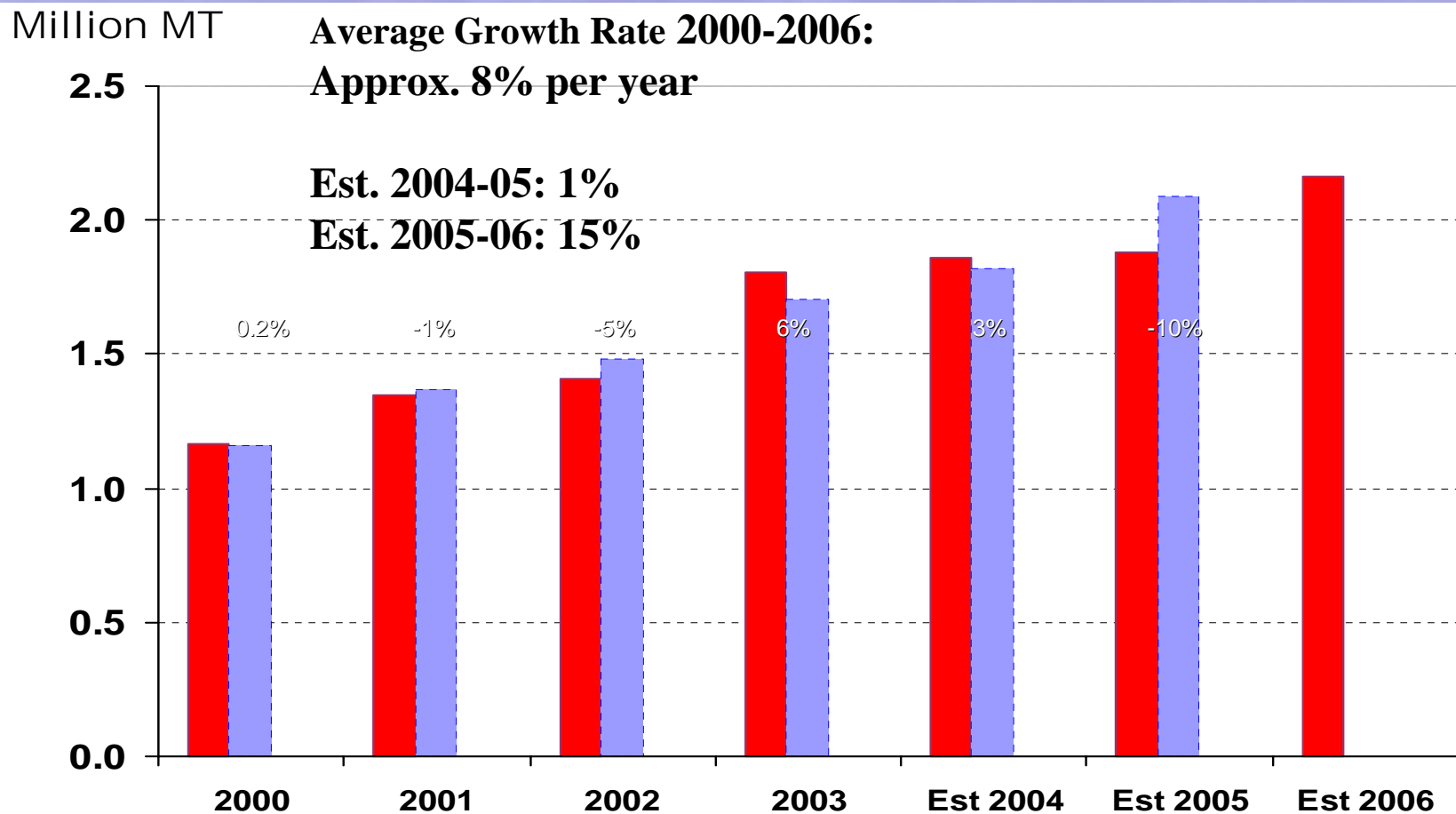
Shrimp Aquaculture Production 1980-2003 & Estimated 2004-2006

Million MT



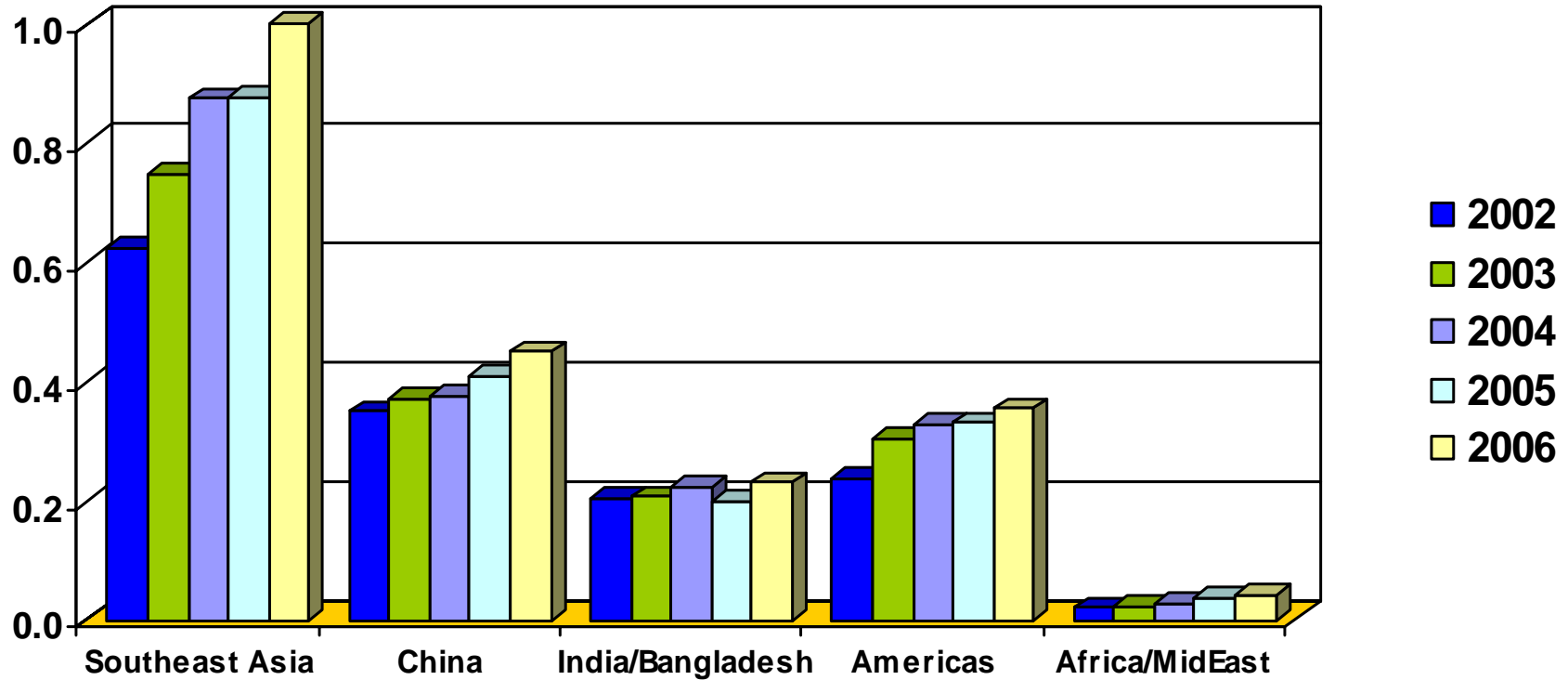
Sources: FAO (2005) and GSOL (2003, 2004, 2005).

Estimated Shrimp Aquaculture Production 2000-2006



Shrimp Aquaculture Production: 2000-2003 & Estimated 2004-2005

Million MT



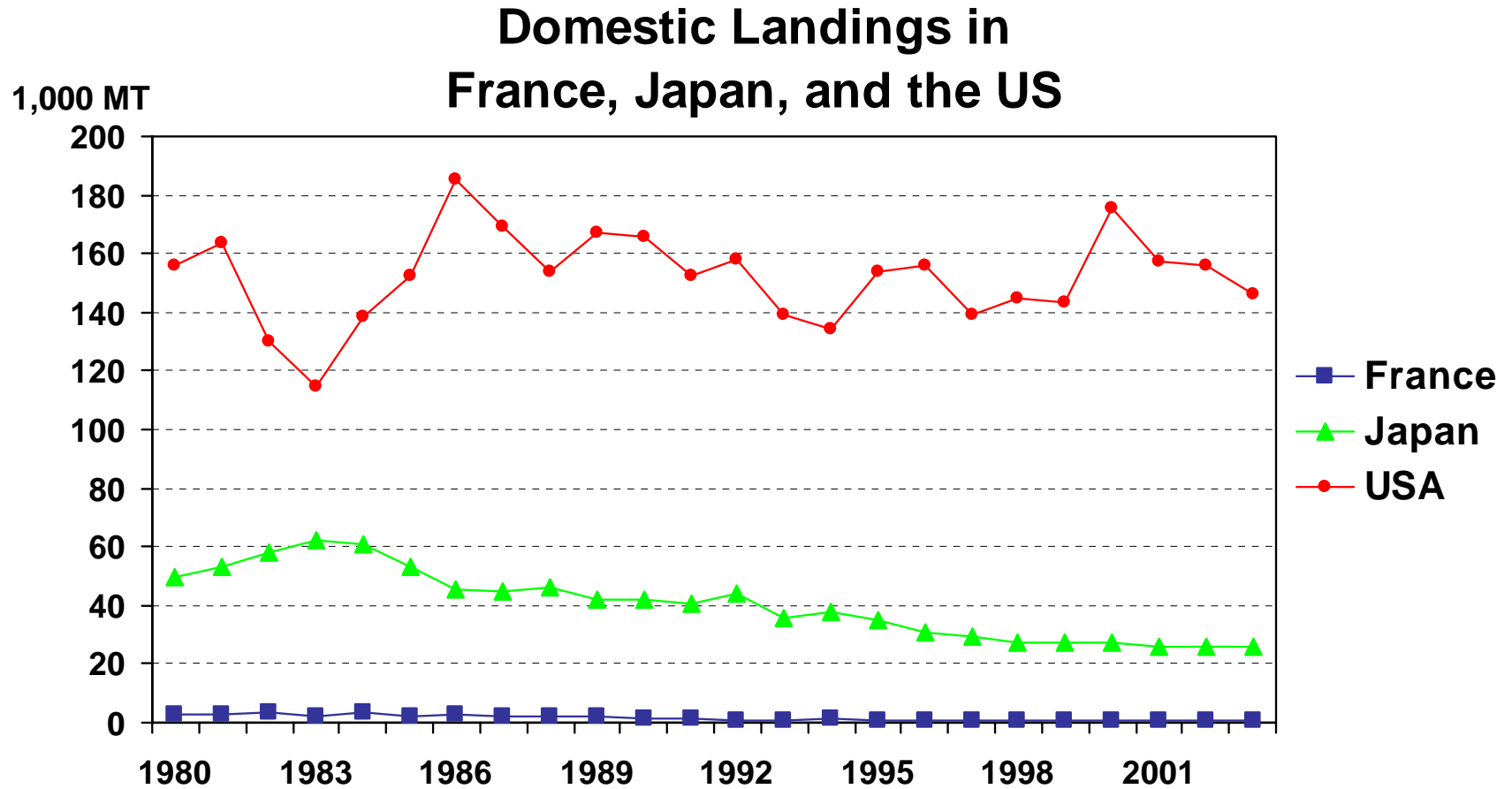
Sources: FAO (2005) and GSOL (2003, 2004, 2005).

Basic Economic Model

- **Price is determined by:**
 - Domestic Harvest,
 - Shrimp Imports, and
 - Income.

- **Imports are determined by:**
 - World Aquaculture Harvest,
 - Domestic Harvest, and
 - Wild Harvest.

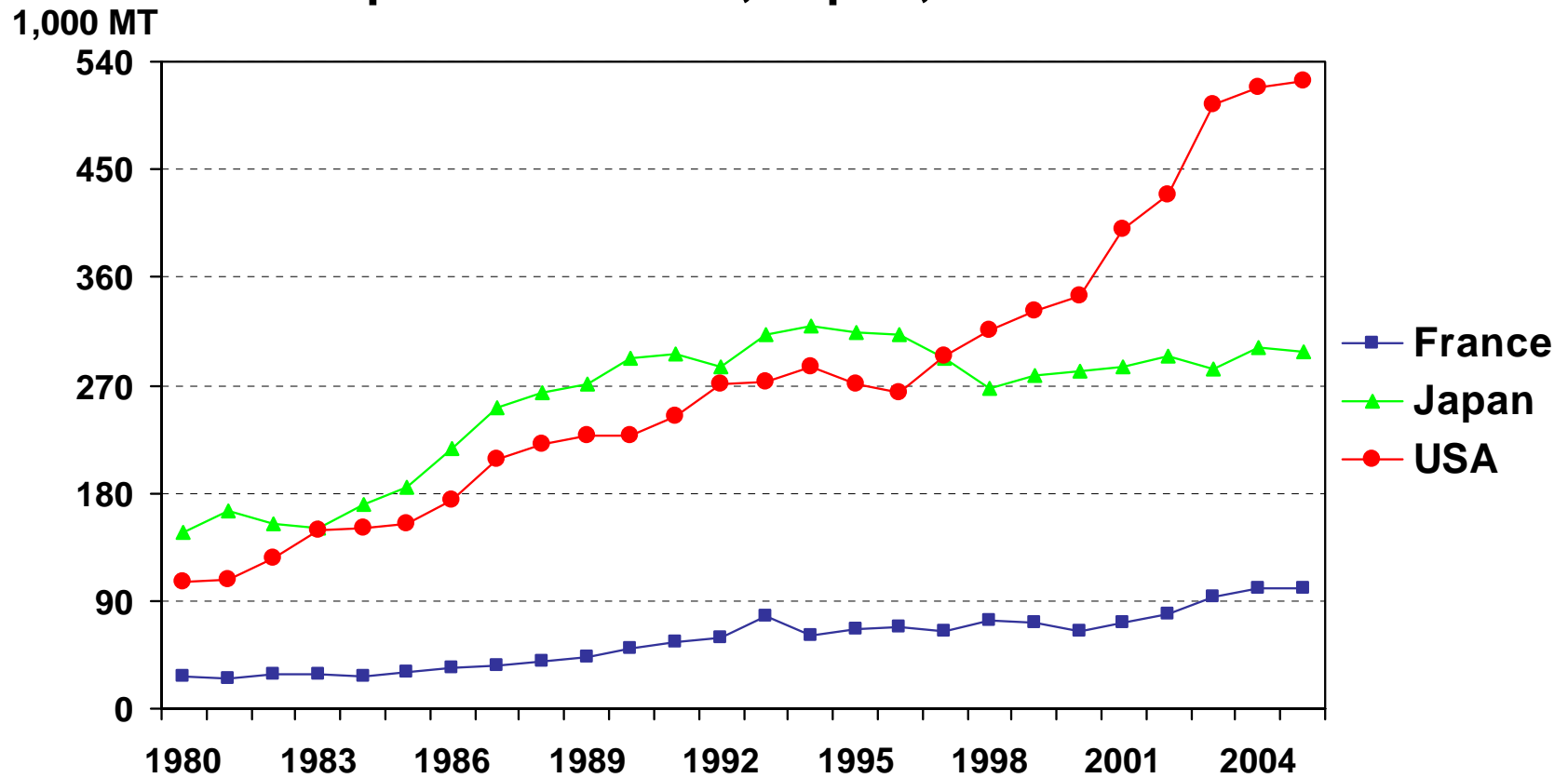
Historical Data



Sources: FAO (2005), NMFS (2005).

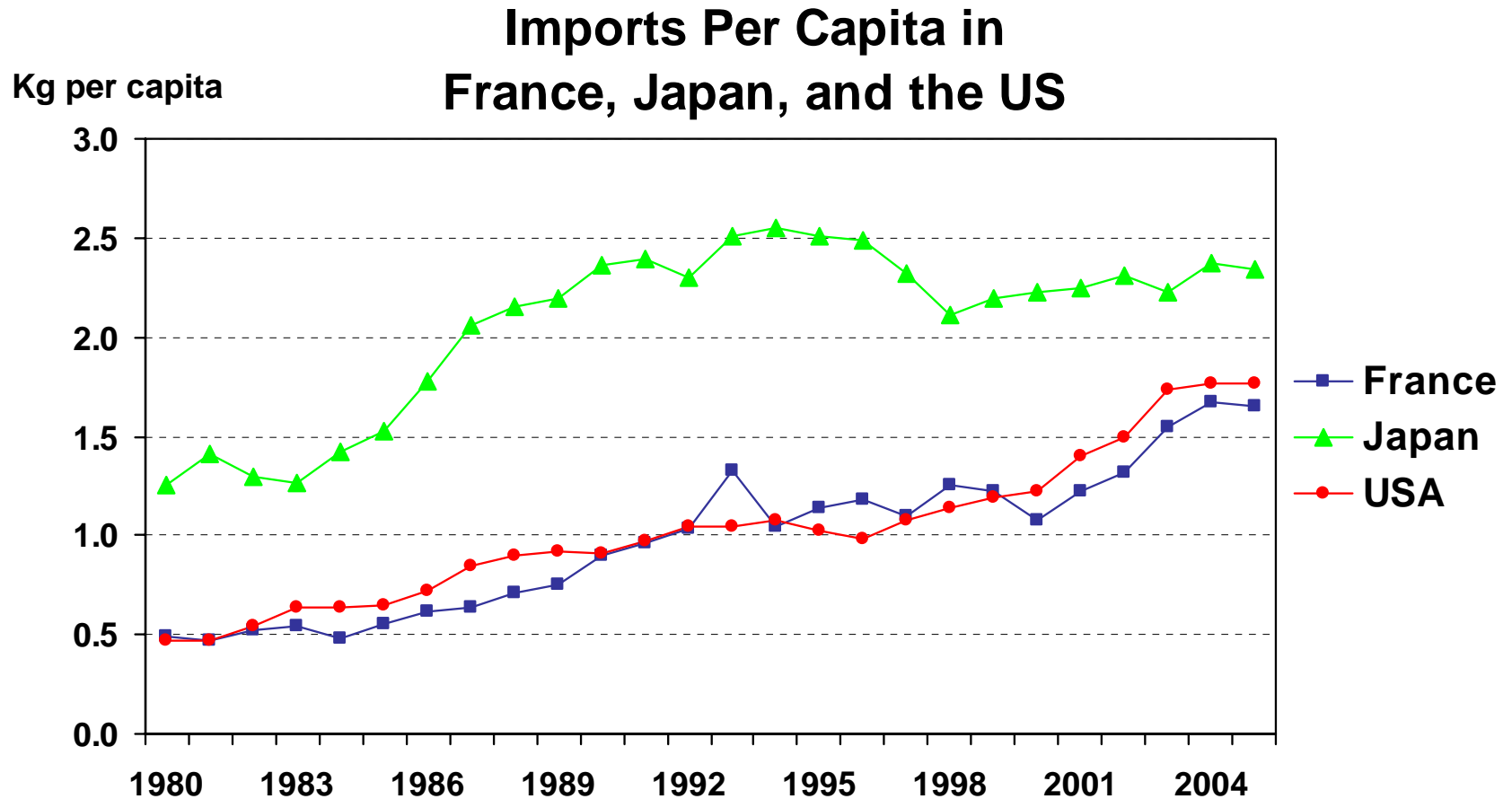
Historical Data

Imports in France, Japan, and the USA



Sources: FAO (2005), Globefish (2005), BANR (2005), Spain Customs, NMFS (2005).

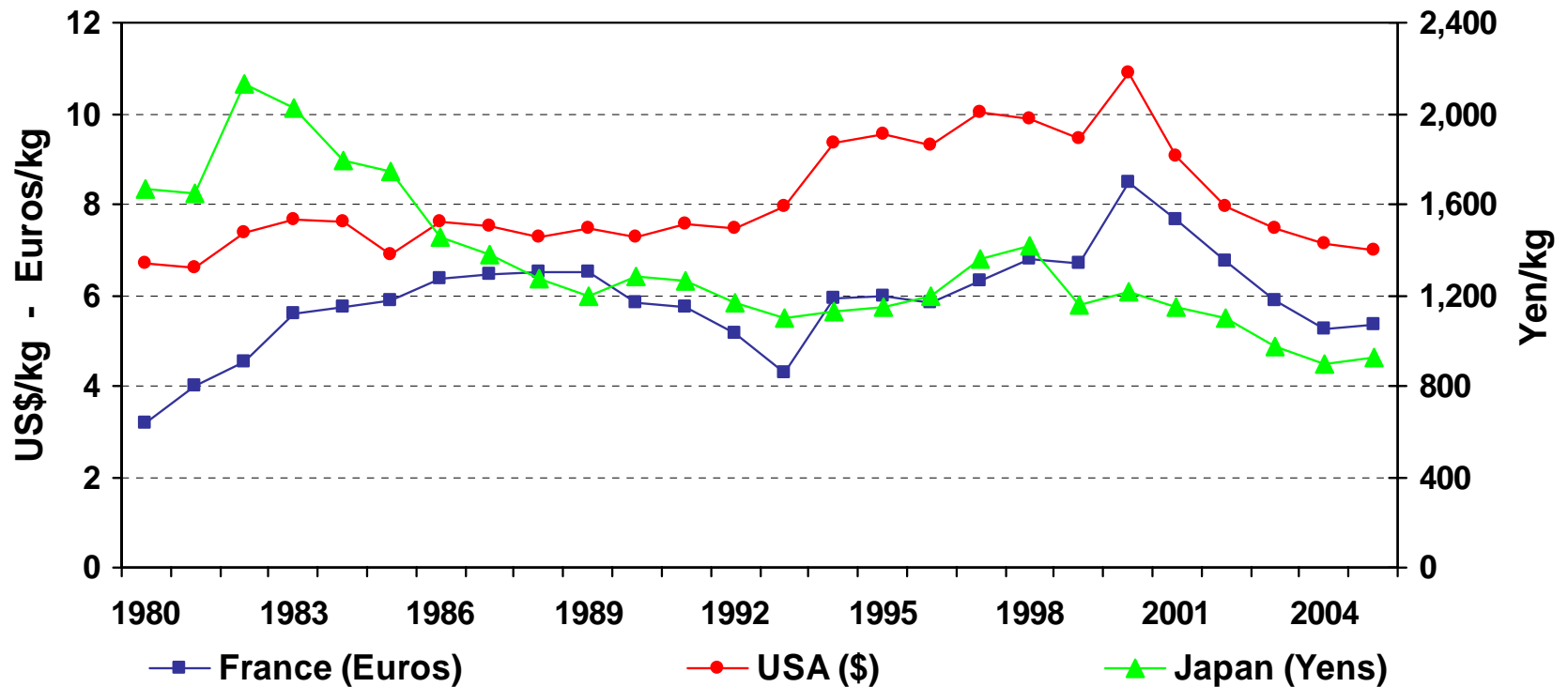
Historical Data



Sources: FAO (2005), Globefish (2005), BANR (2005), Spain Customs (2005), NMFS (2005).

Historical Data

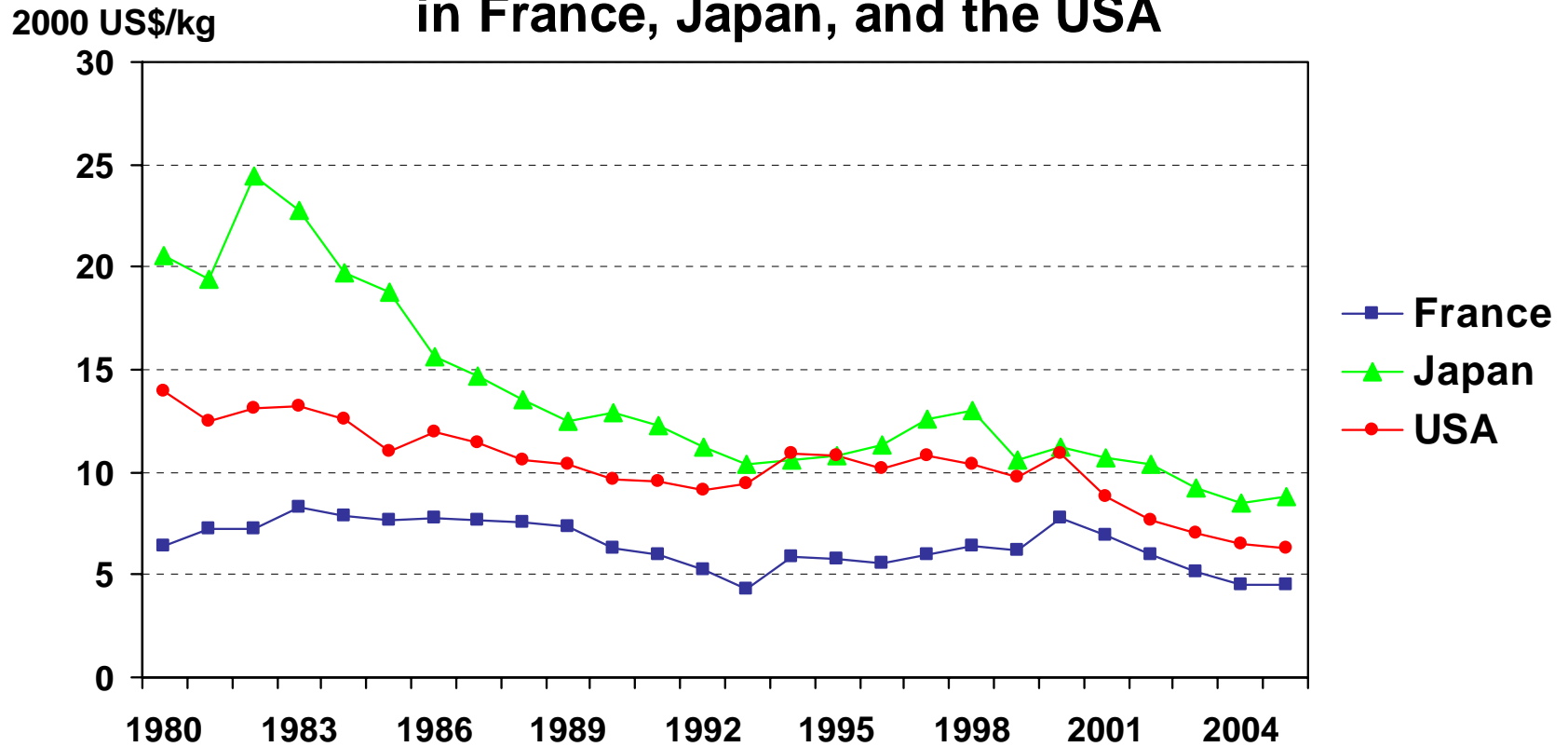
Nominal Import Prices (Local Currency) in France, Japan, and the USA



Sources: FAO (2005), Globefish (2005), BANR (2005), Spain Customs (2005), NMFS (2005).

Historical Data

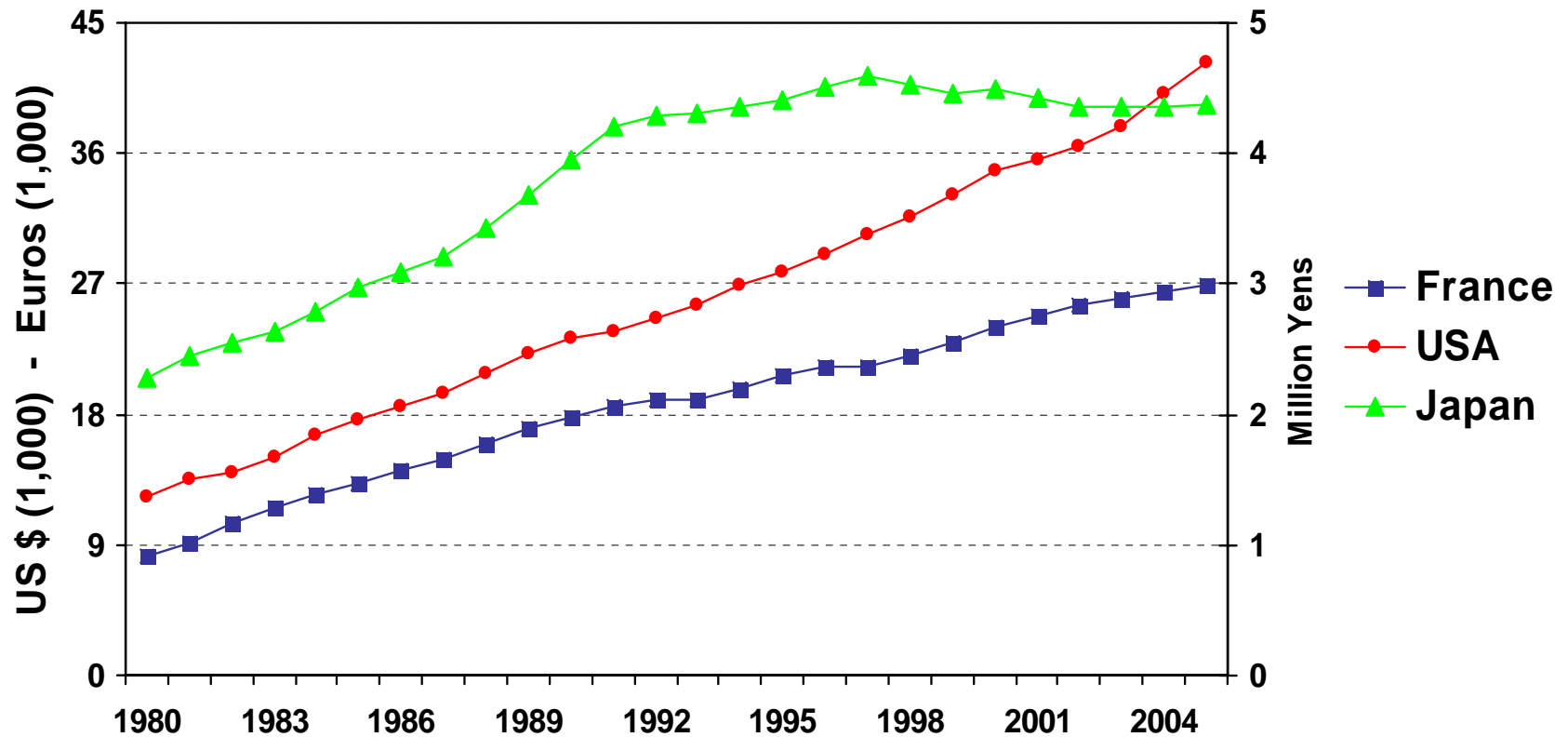
Real Price Trend (2000 US\$) in France, Japan, and the USA



Sources: FAO (2005), Globefish (2005), BANR (2005), Spain Customs (2005), NMFS (2005).

Historical Data

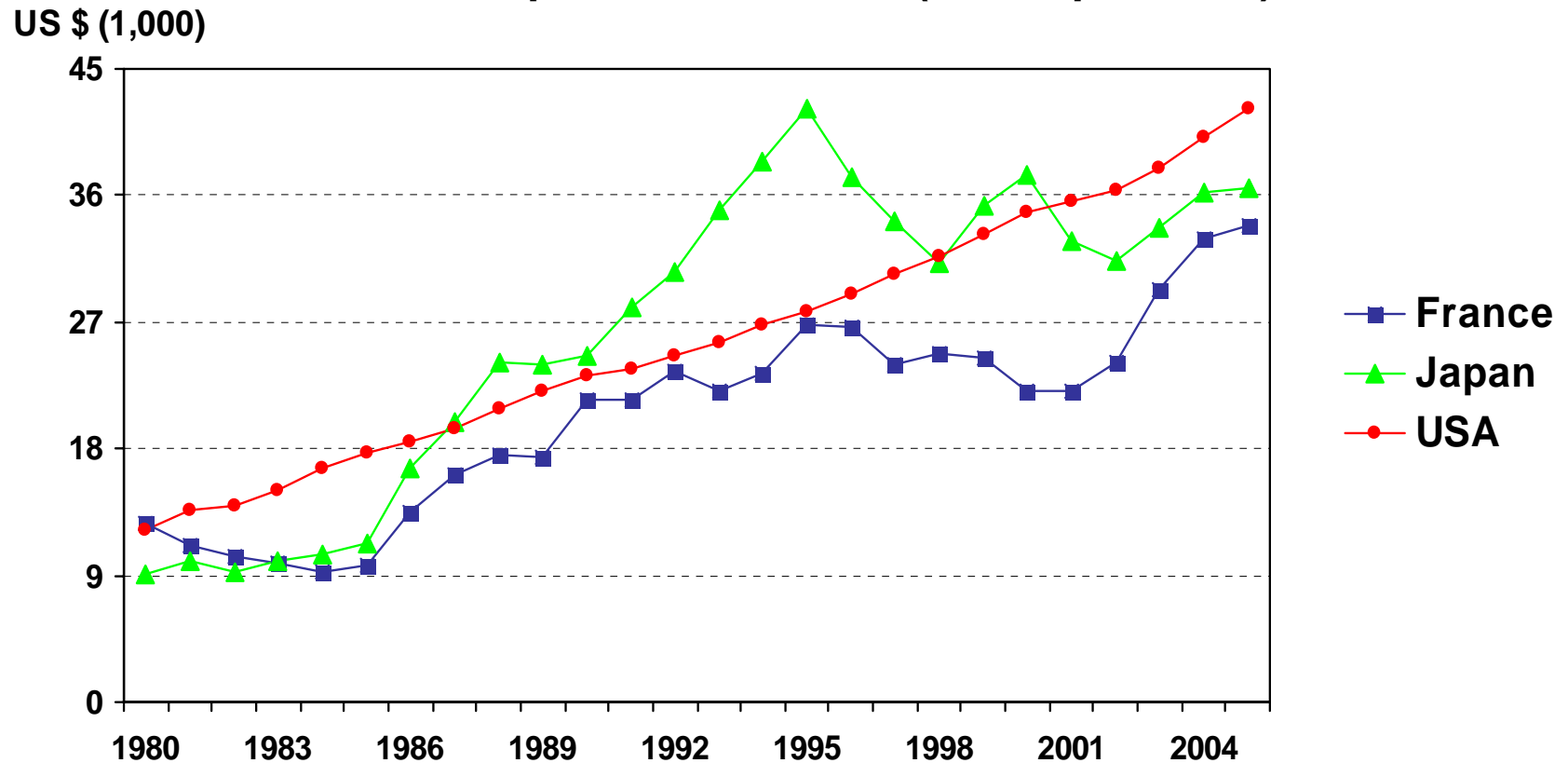
Nominal Income (Local Currency)
in France, Japan, and the USA (Per Capita GDP)



Sources: BEA (2004), IMF (2004).

Historical Data

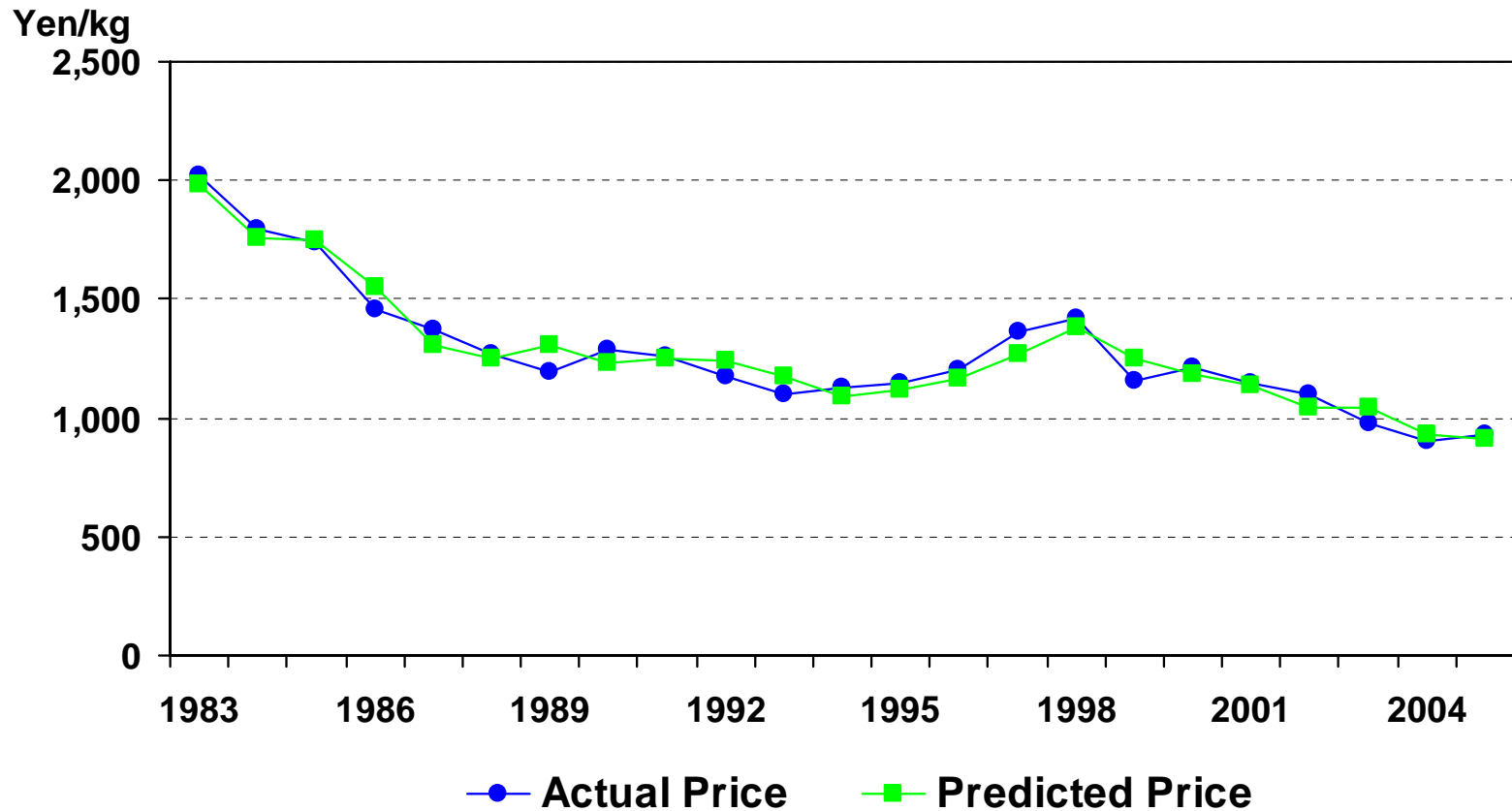
**Nominal Income (US\$)
in France, Japan, and the USA (Per Capita GDP)**



Sources: BEA (2004), IMF (2004).

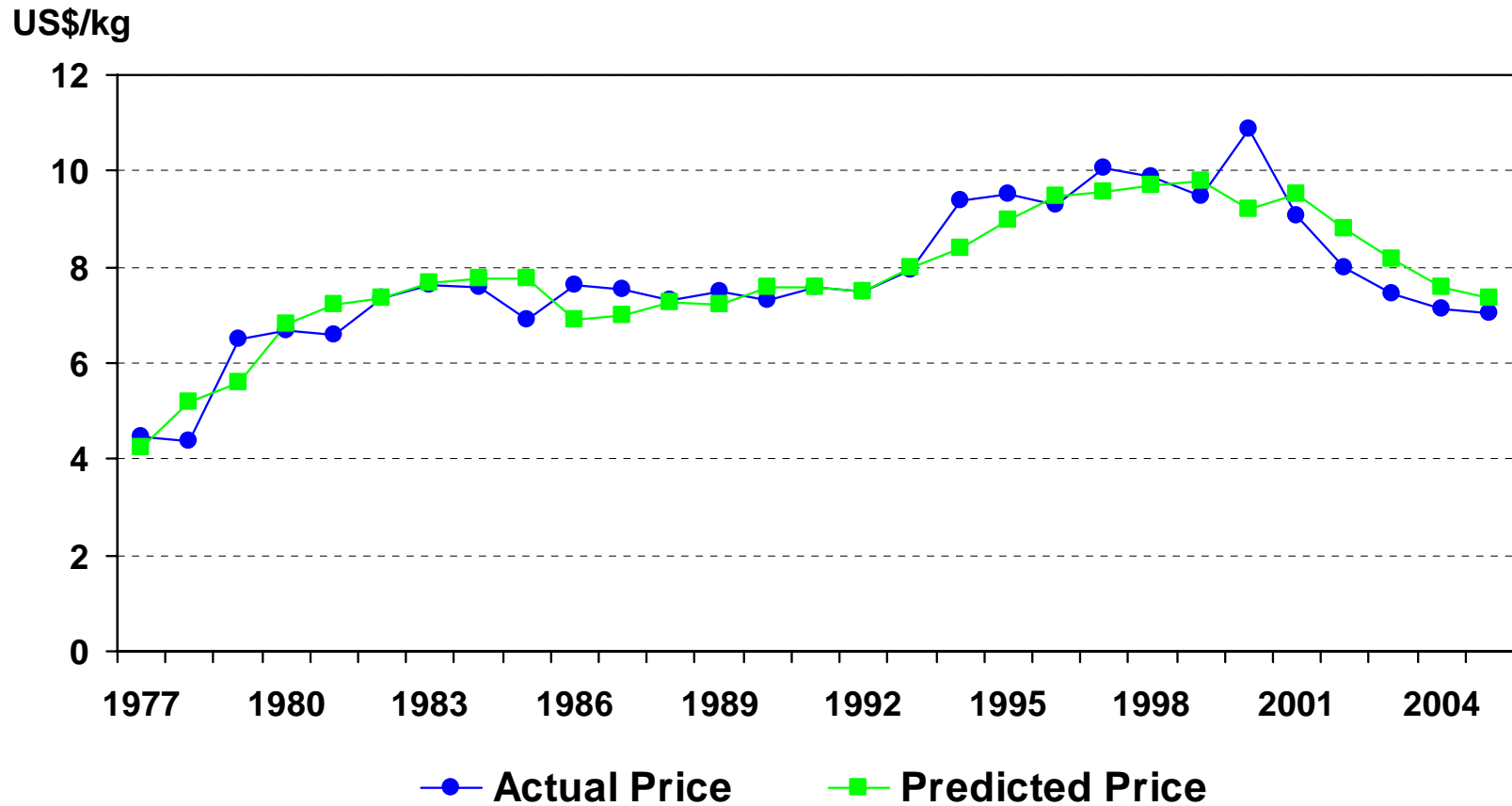
Model Output

Actual vs. Predicted Prices: Japan



Model Output

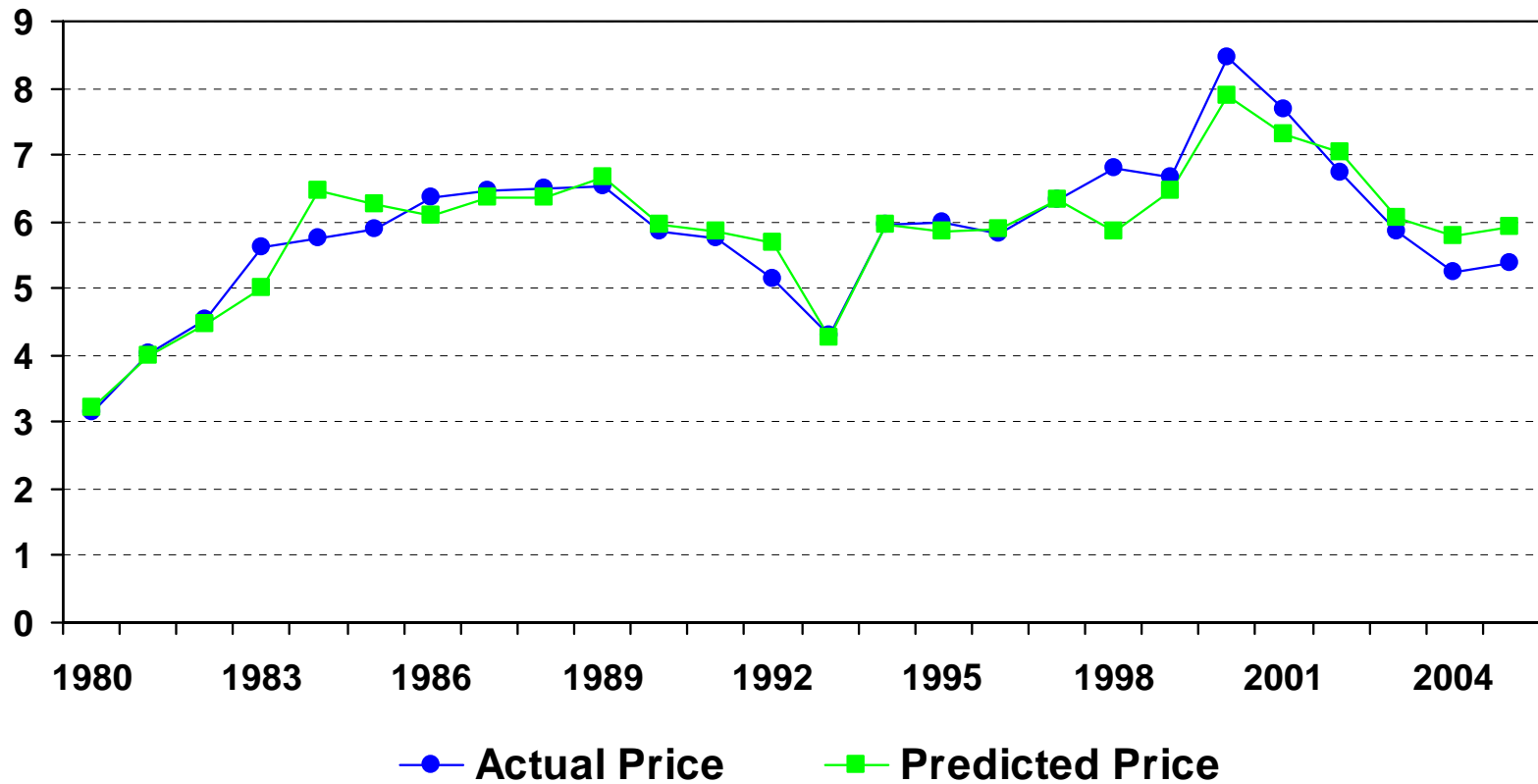
Actual vs. Predicted Prices: USA



Model Output

Actual vs. Predicted Prices: France

Euros/kg



Price Flexibilities

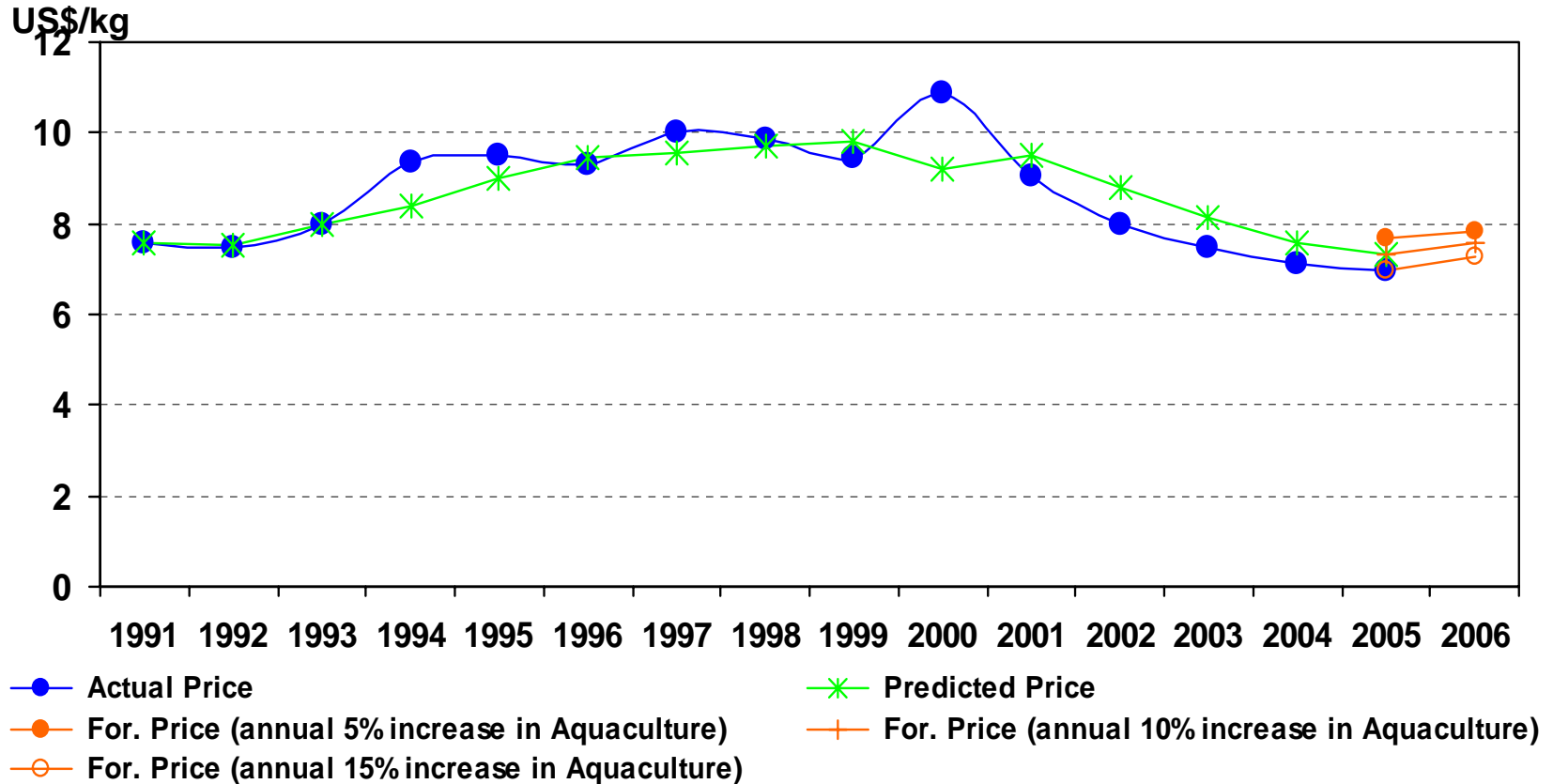
% Change in Price Given a 1% Change in:

Market (All Product Forms)	Import Quantity	Income
USA	-1.1%	1.1%
Japan	-1.2%	1.0%
France	-0.8%	1.3%

US: Price Expectations

-1% to +7%

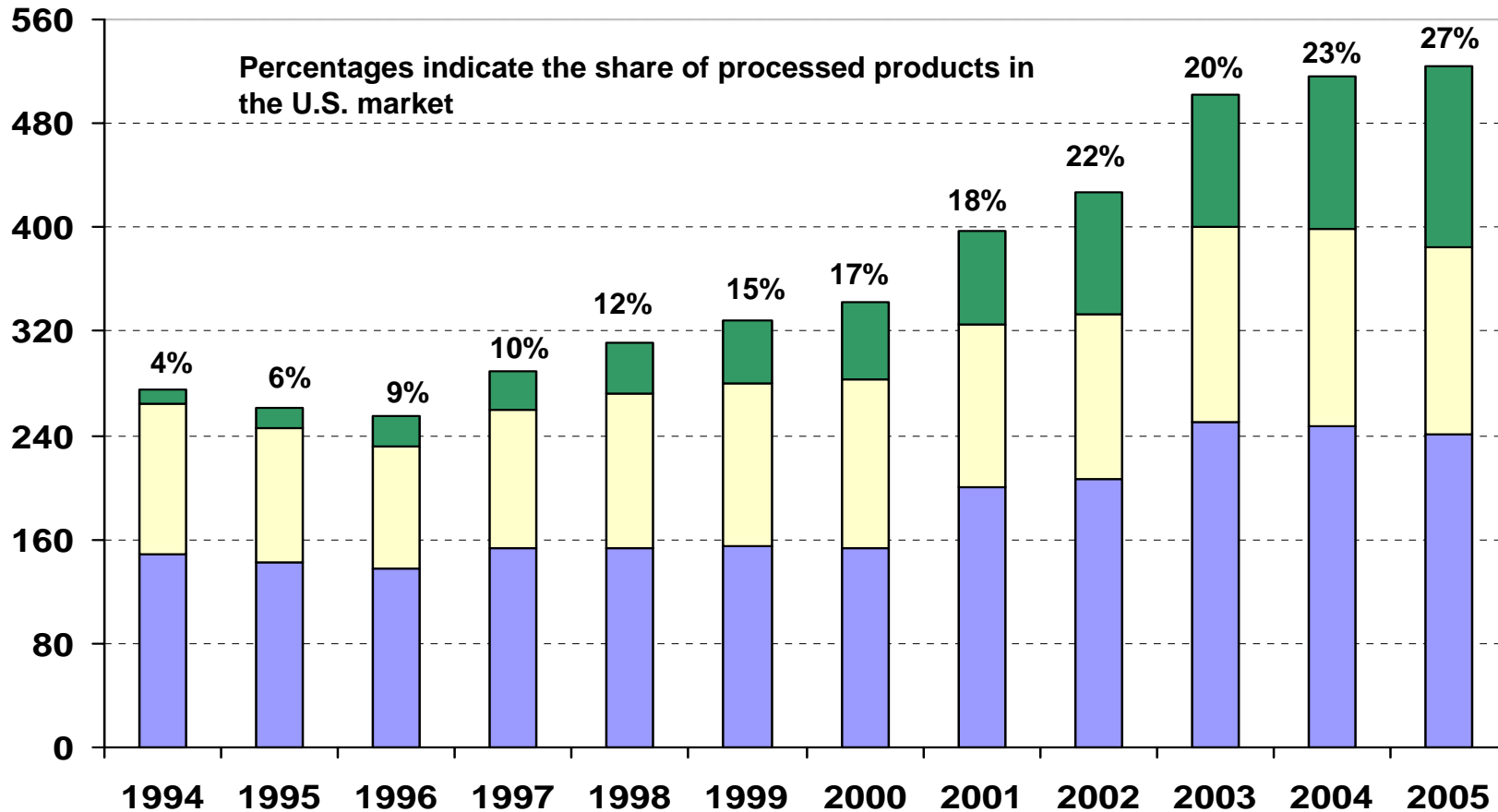
US Price Forecast for a Range of Aquaculture Output*



*3% annual increase in per capita GDP, 1% annual increase in population, stable domestic production.

Composition of US Shrimp Imports by Product Type

Thousand MT



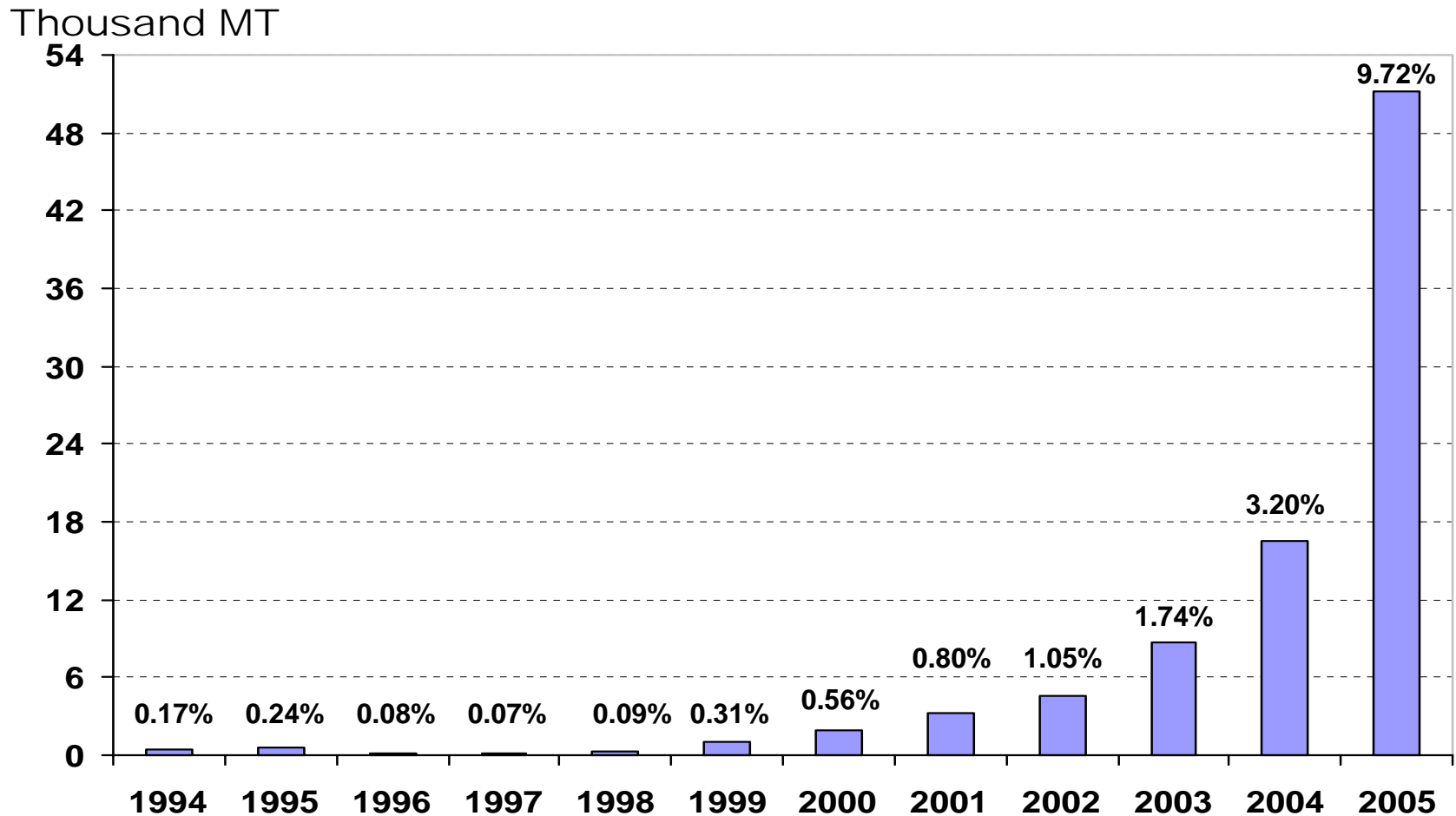
Source: SeafoodReport.com (2005).

■ Frozen Shell-on, Headless

■ Peeled

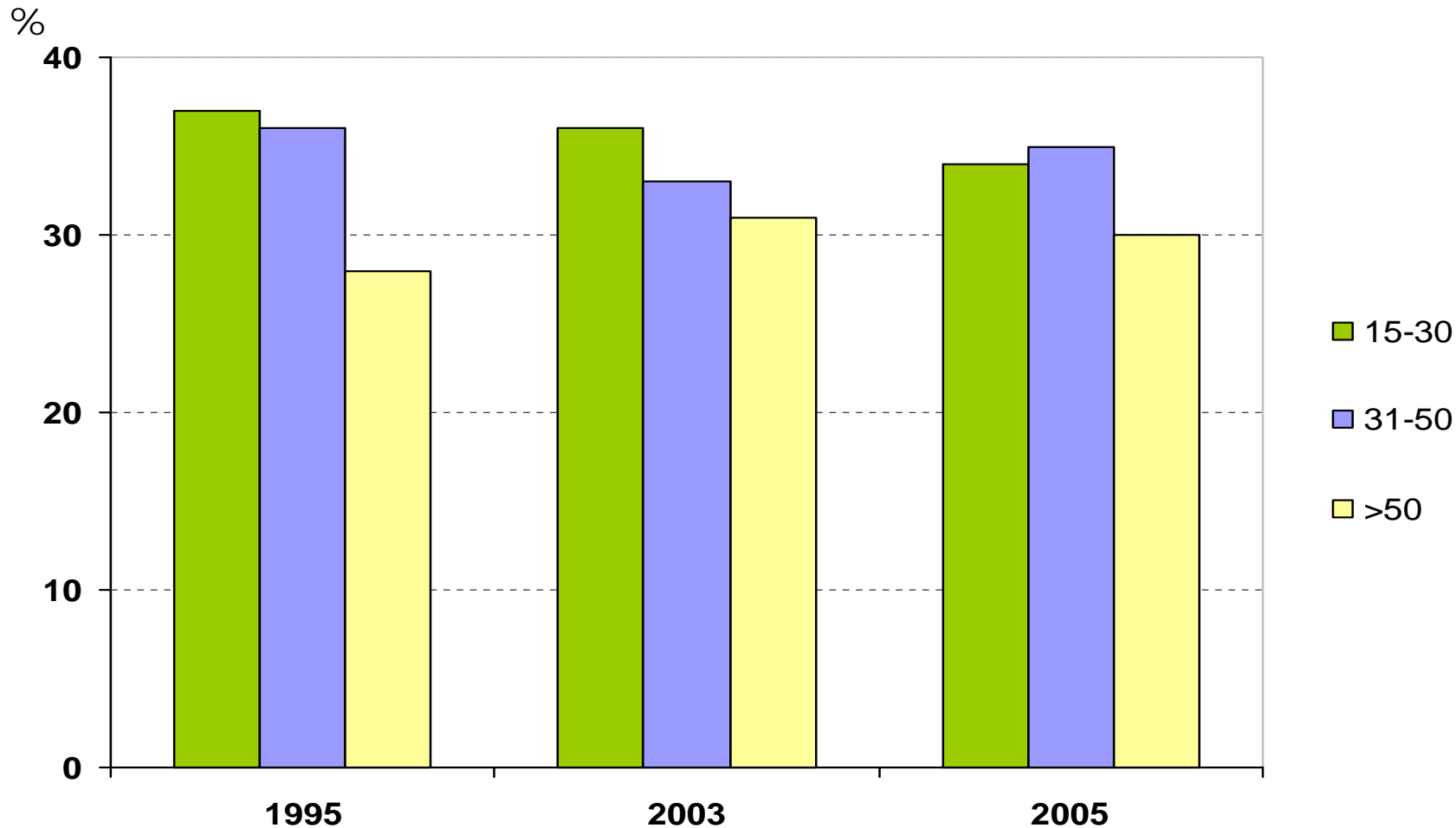
■ Processed

US Imports of Breaded Shrimp Products



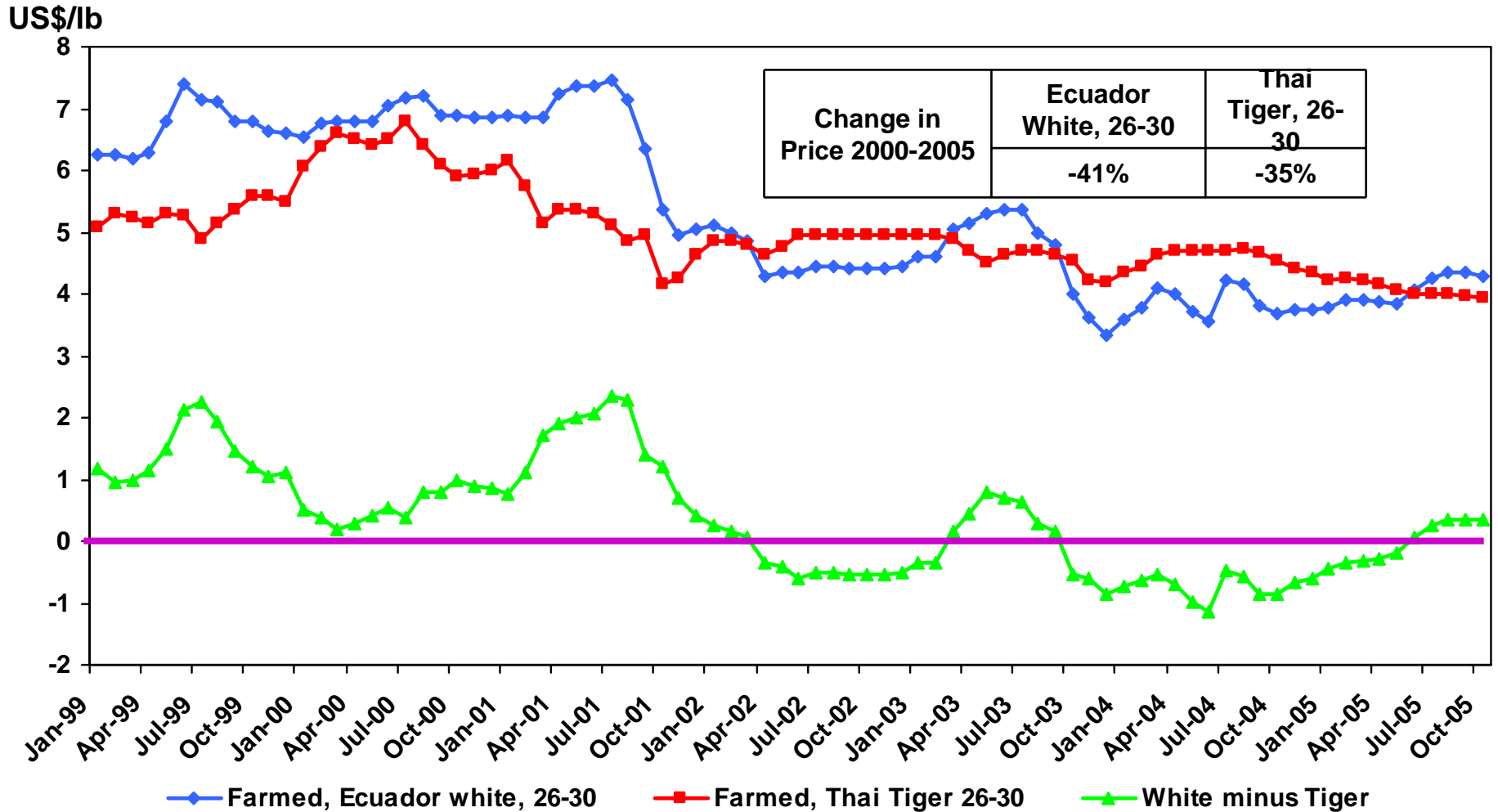
Source: SeafoodReport.com (2005). Percentages indicate share of total U.S. shrimp market.

Composition of US Shrimp Imports by Size



Source: SeafoodReport.com (2005).

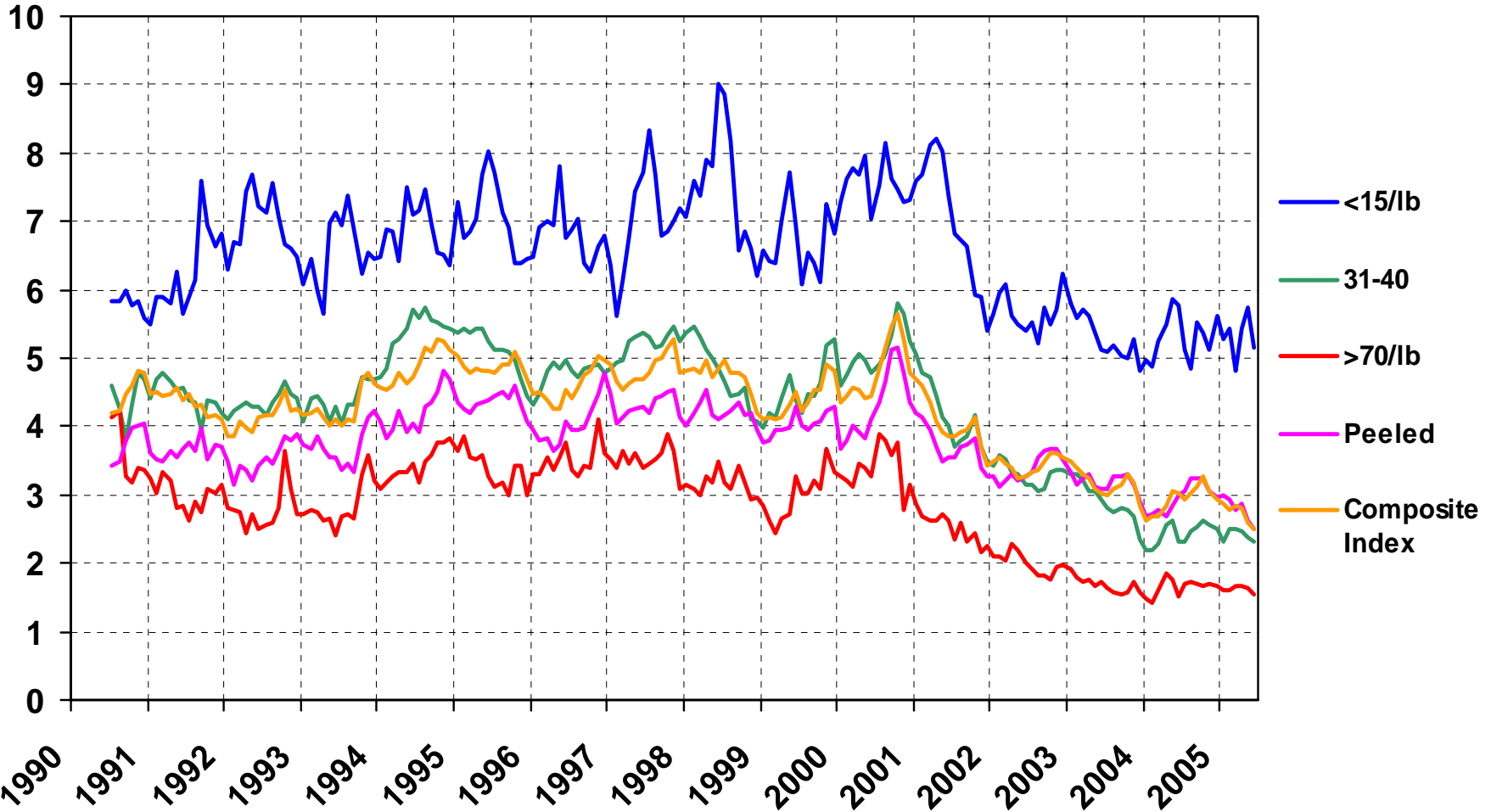
Vannamei vs. Monodon US Wholesale Prices



Source: Urner Barry, Several Years.

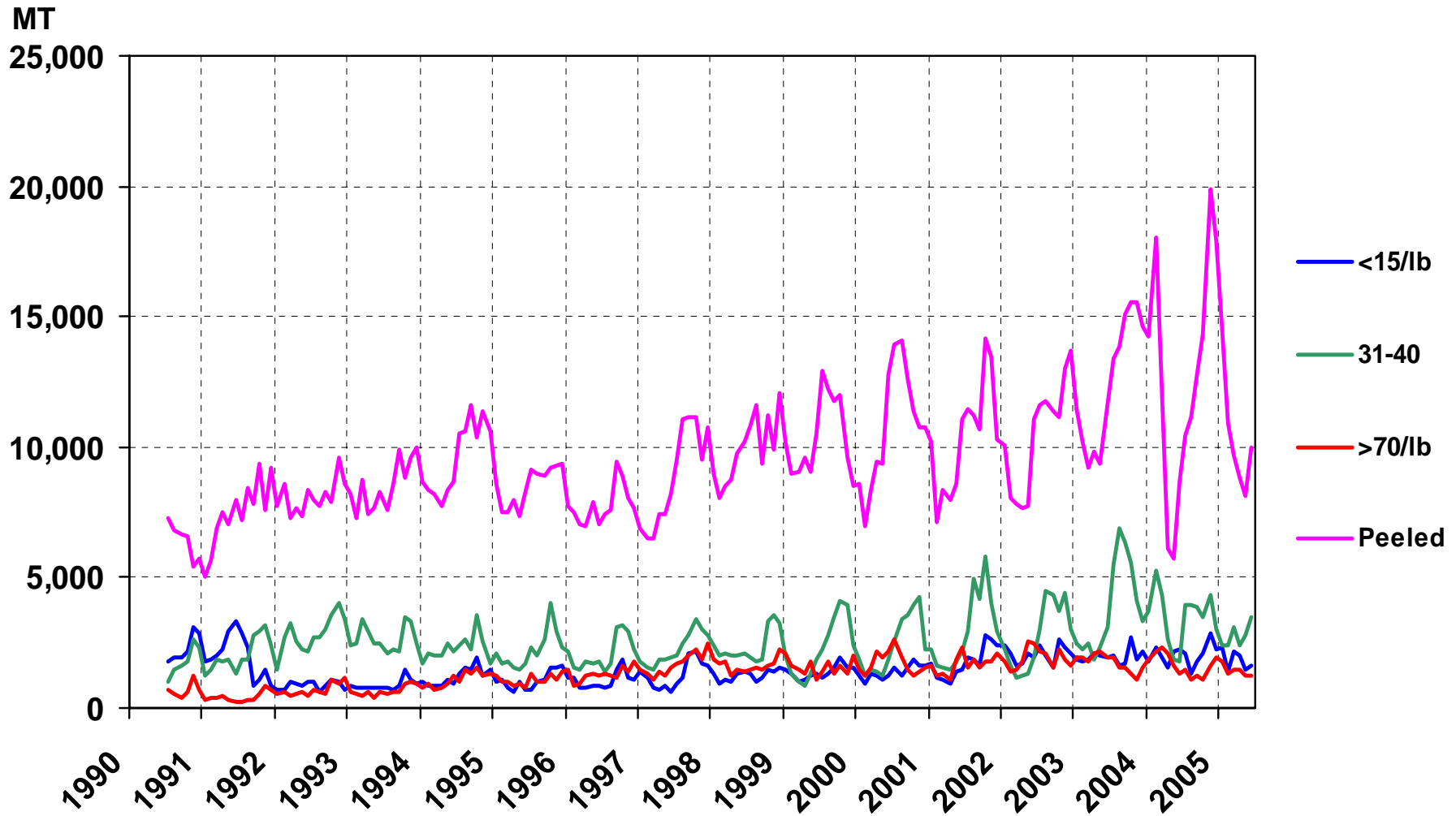
Trends in U.S. Shrimp Import Prices

2000 US\$/lb



Source: SeafoodReport.com (2005)

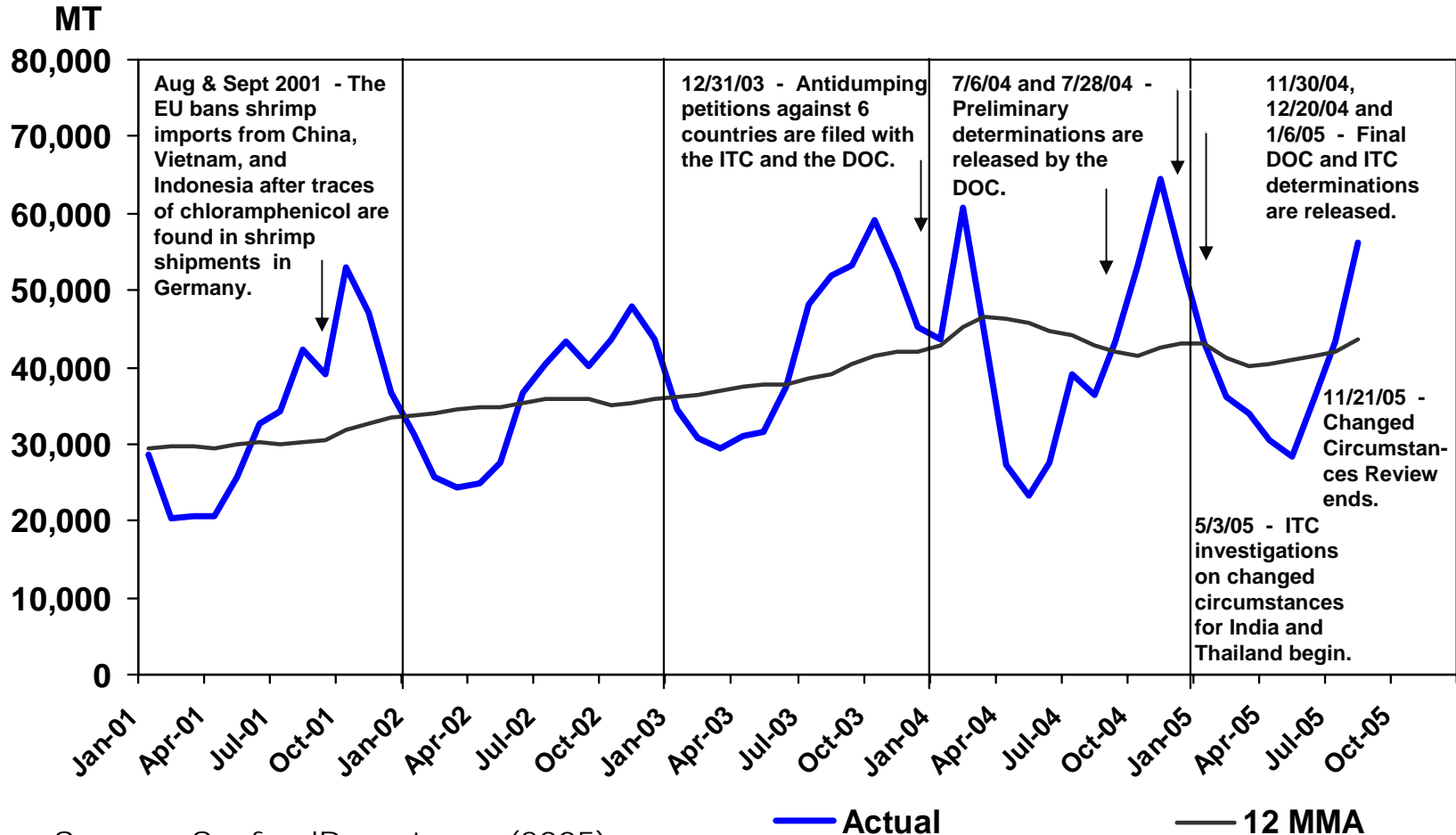
Trends in U.S. Shrimp Import Quantities



Source: SeafoodReport.com (2005)

US Shrimp Imports

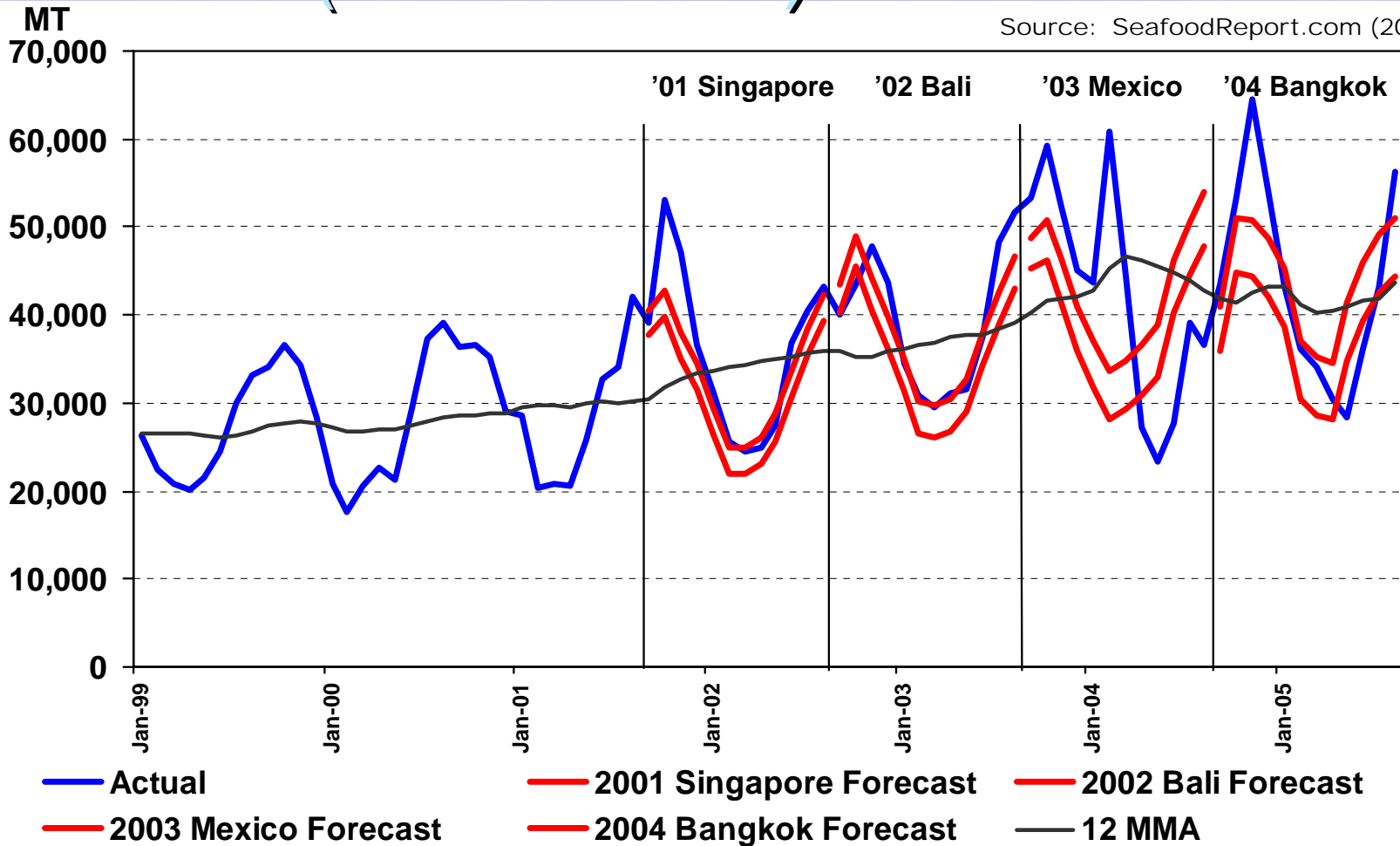
Jan 2001 – Aug 2005



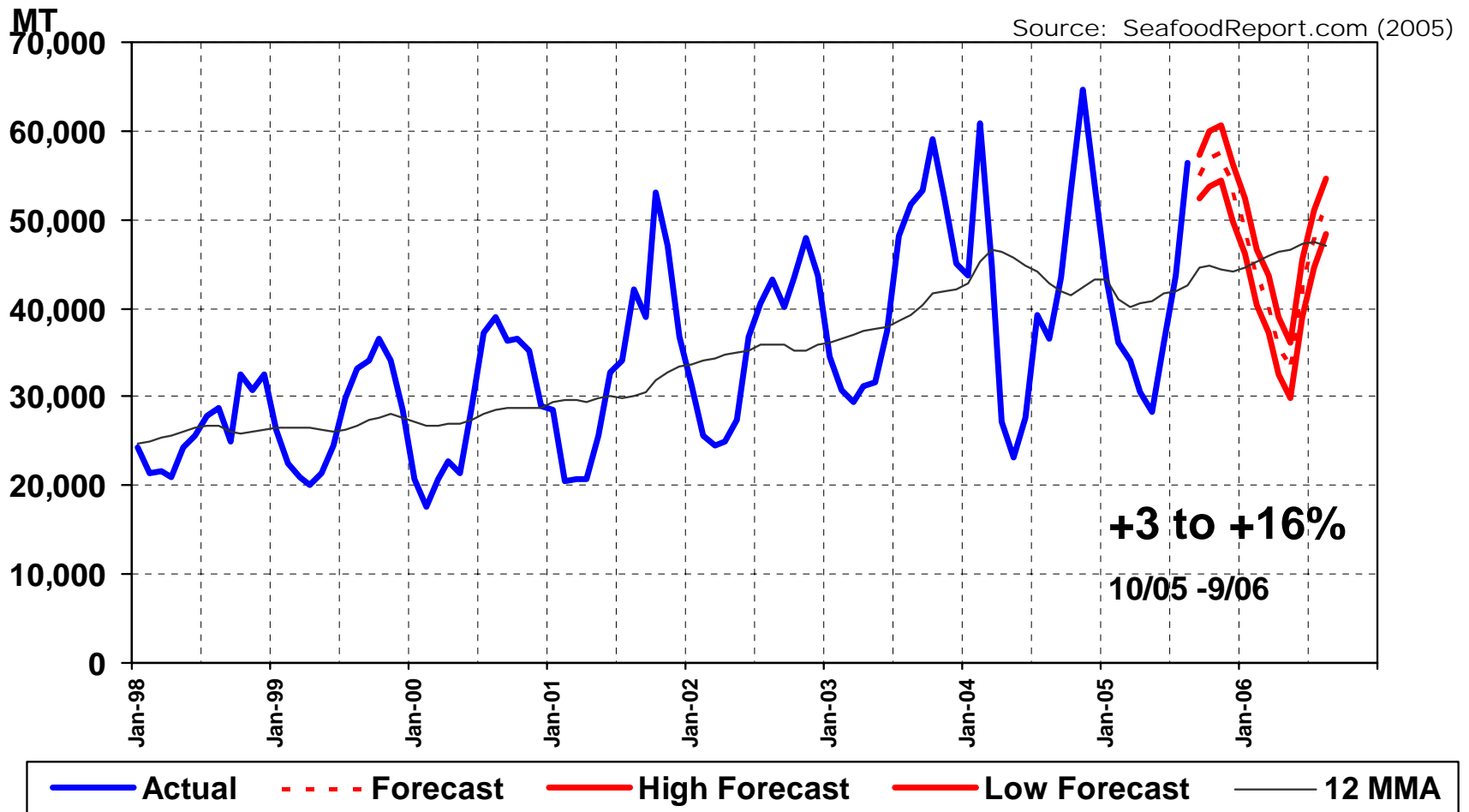
Source: SeafoodReport.com (2005)

US Shrimp Import Forecasts (2001-2004) V Actual

Source: SeafoodReport.com (2005)

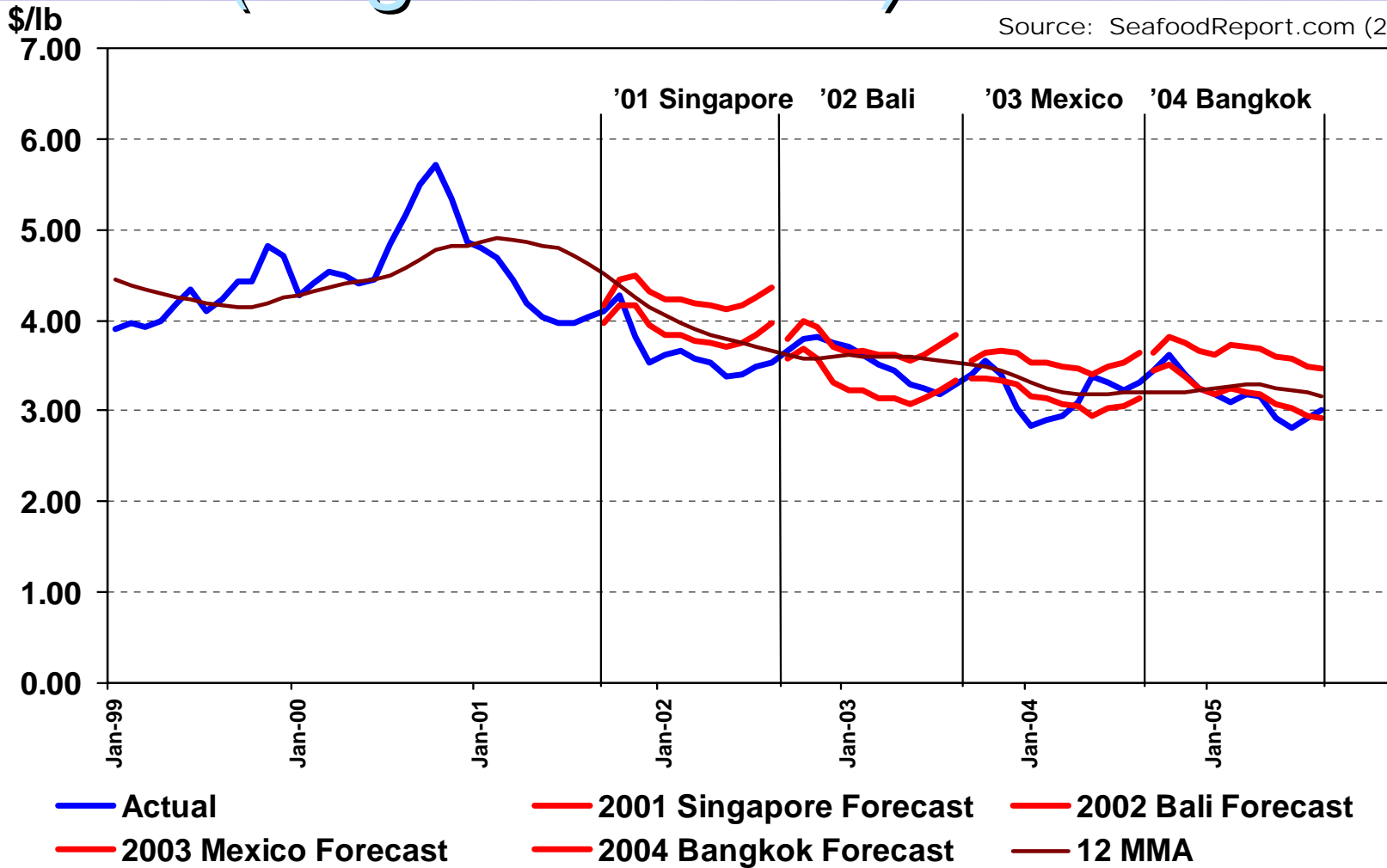


US Shrimp Import Forecast

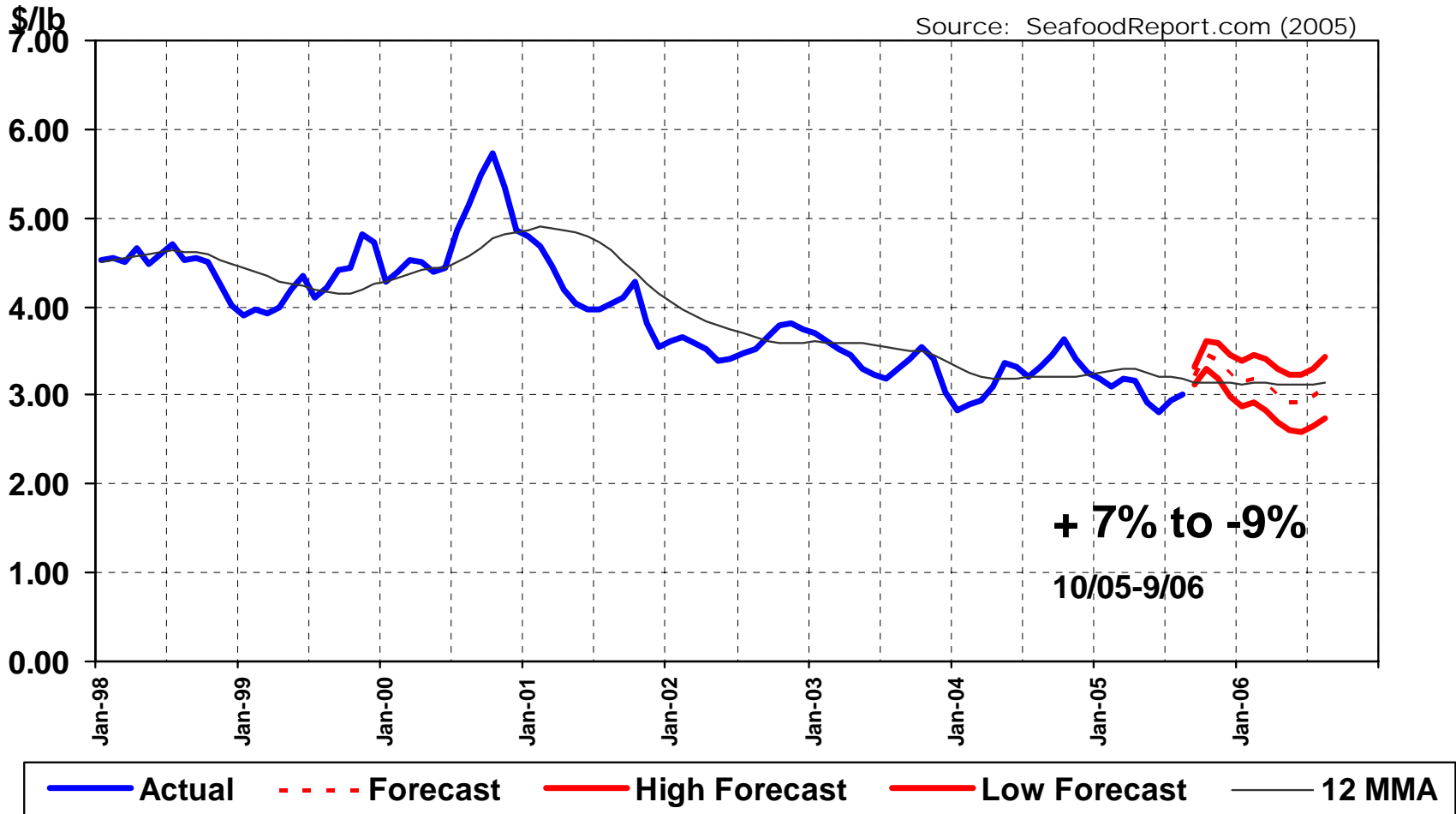


US Shrimp Price Forecast (Aug 2001-2004) V Actual

Source: SeafoodReport.com (2005)



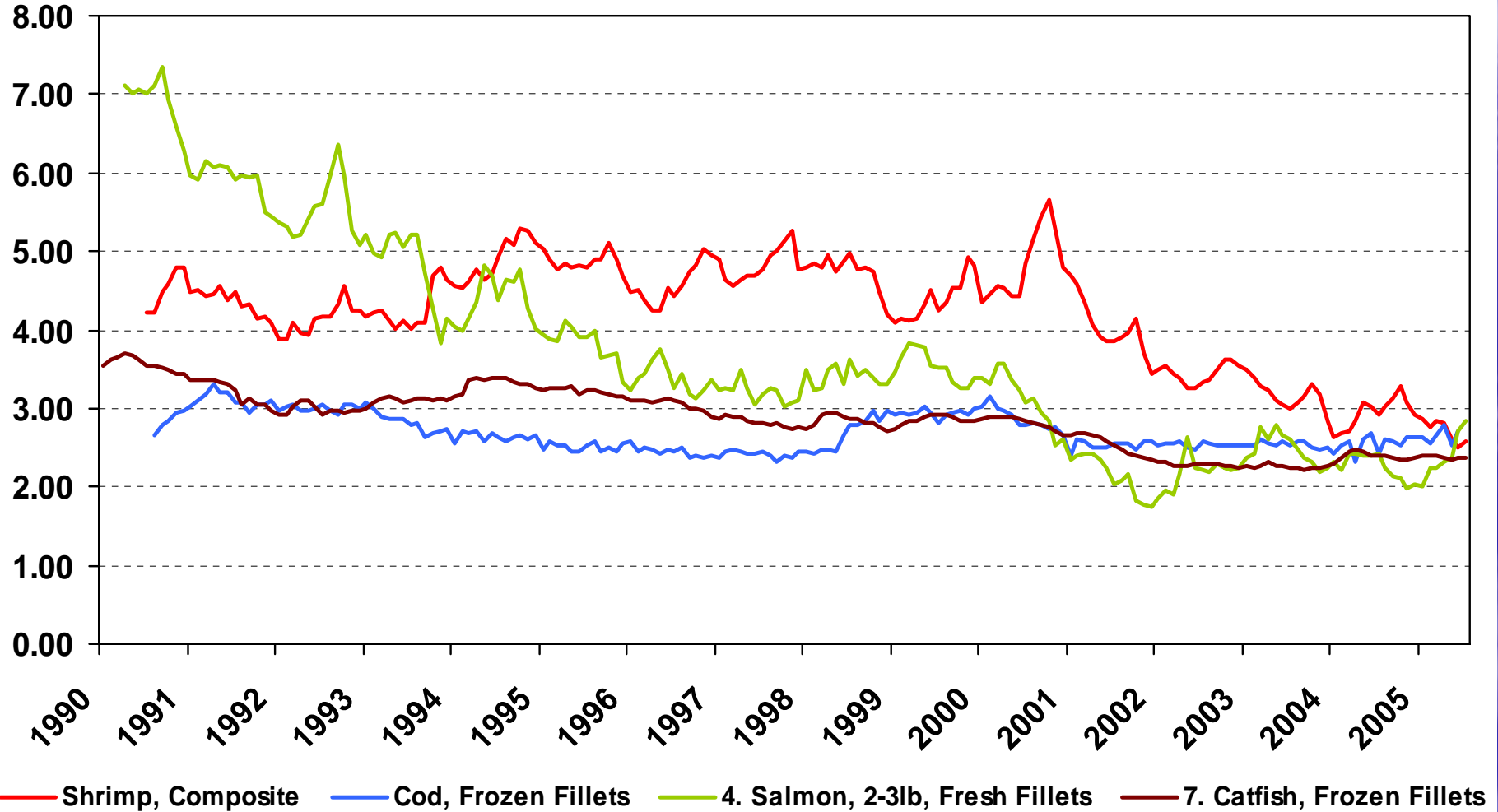
US Shrimp Price Forecast



Trends in Real Seafood Prices

2000 US\$/lb

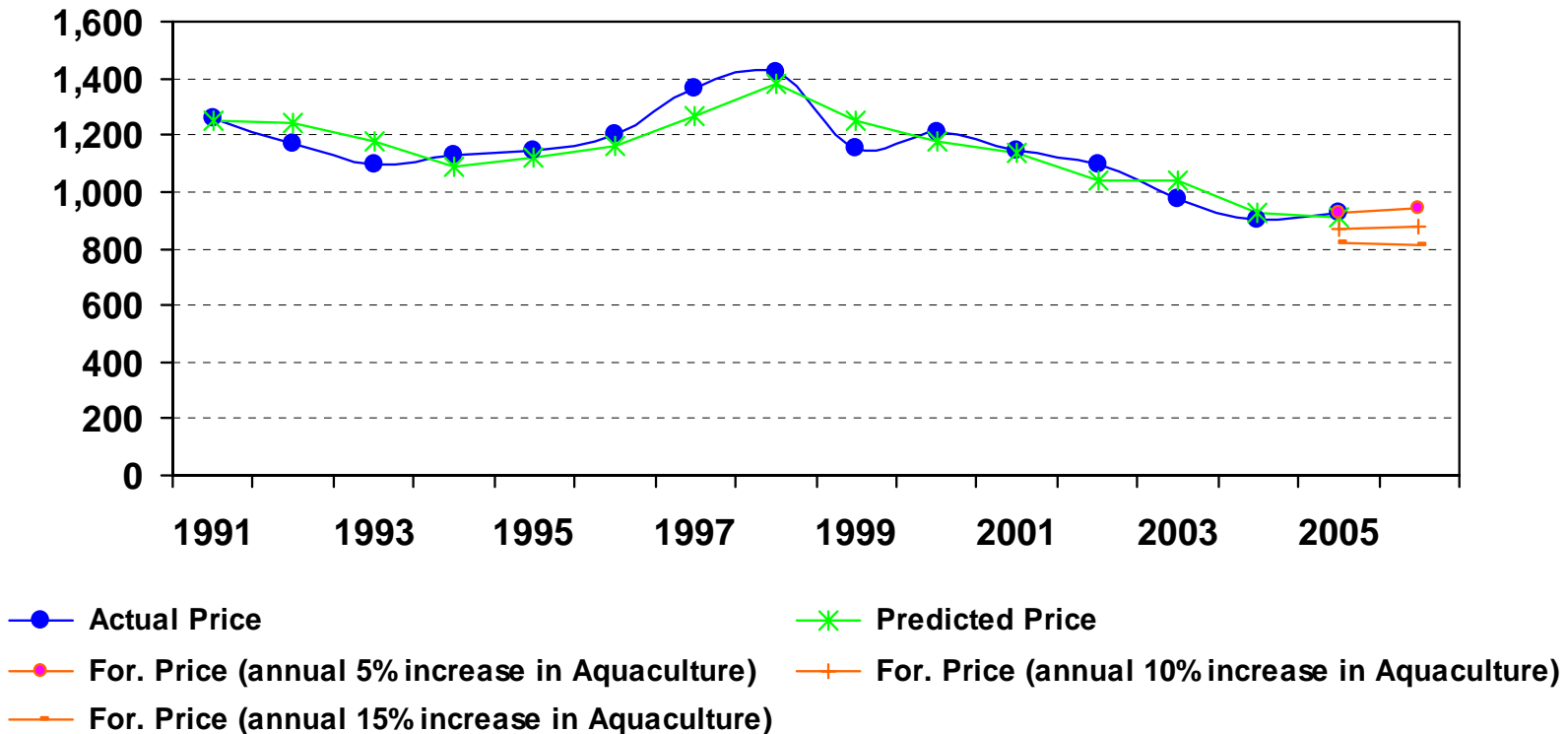
Sources: SeafoodReport.com (2005), USDA (2005).



Japan: Price Expectations

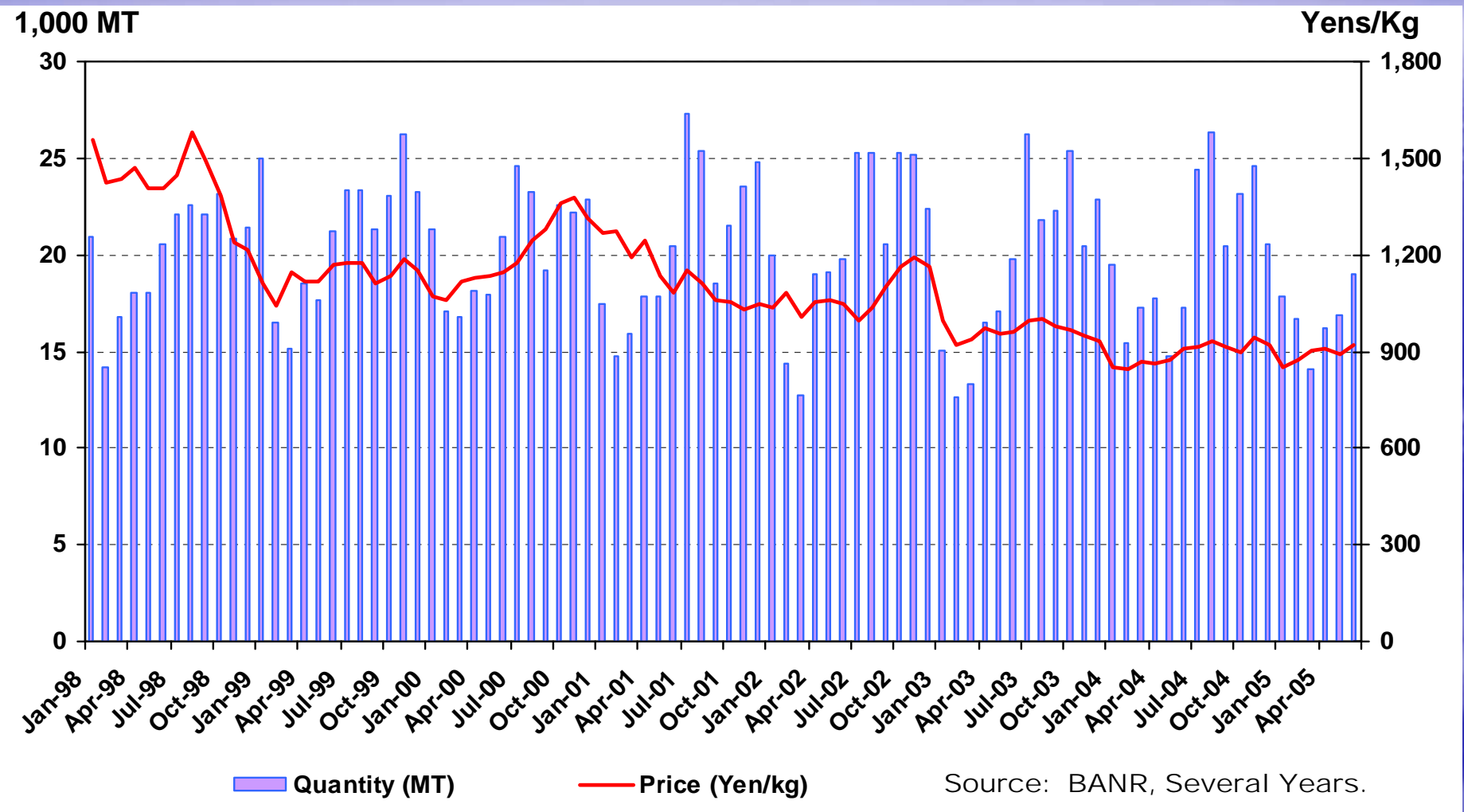
Range: -8% to +3%

Yen/kg Japanese Price Forecast for a Range of Aquaculture Output*

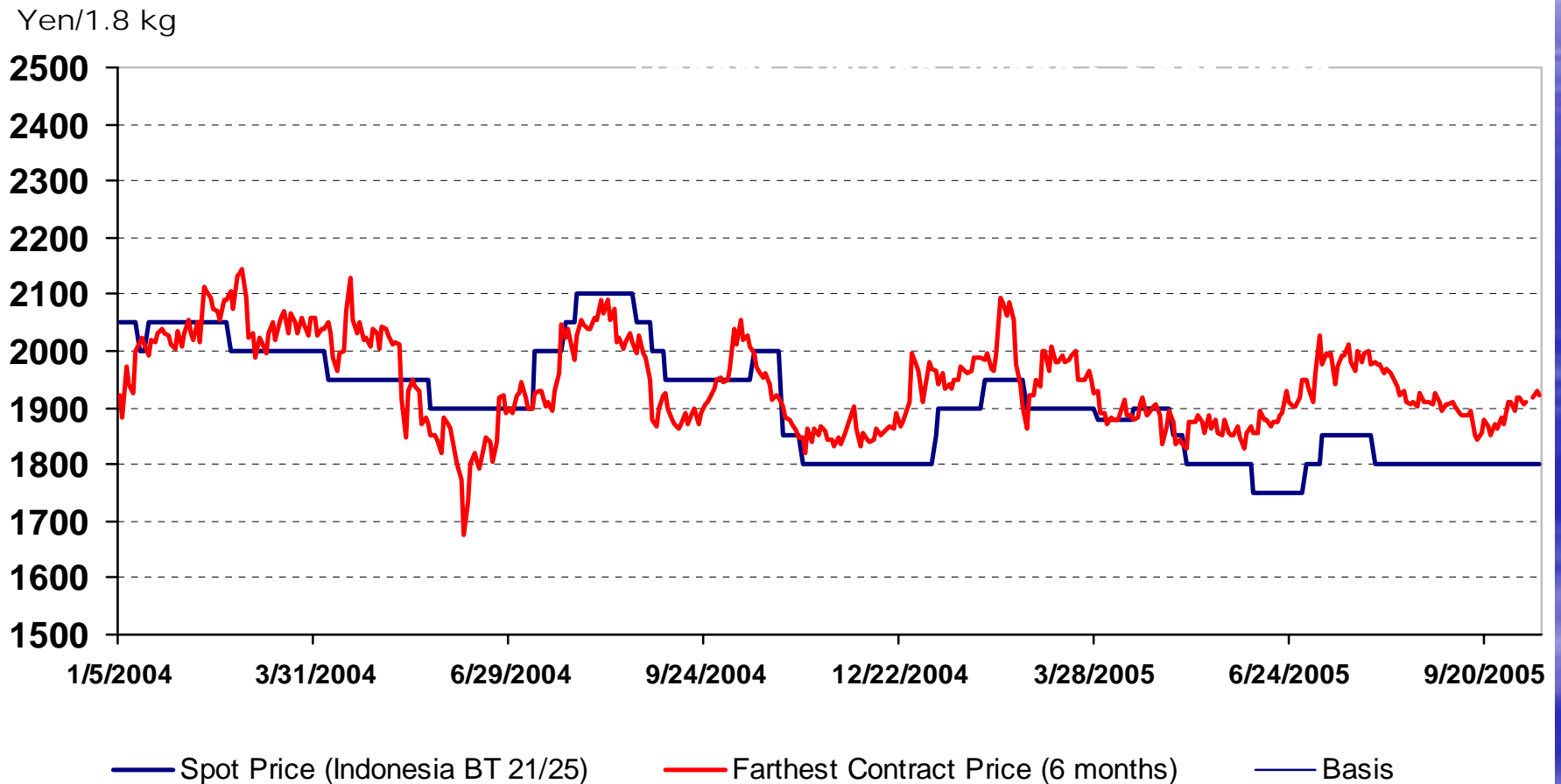


*Stable per capita GDP, 0.1% annual increase in population, 3% annual decrease in domestic production.

Trends in Japanese Shrimp Imports



Comparison of Spot and Futures Prices for Frozen Shrimp - Kansai Commodity Exchange, Japan

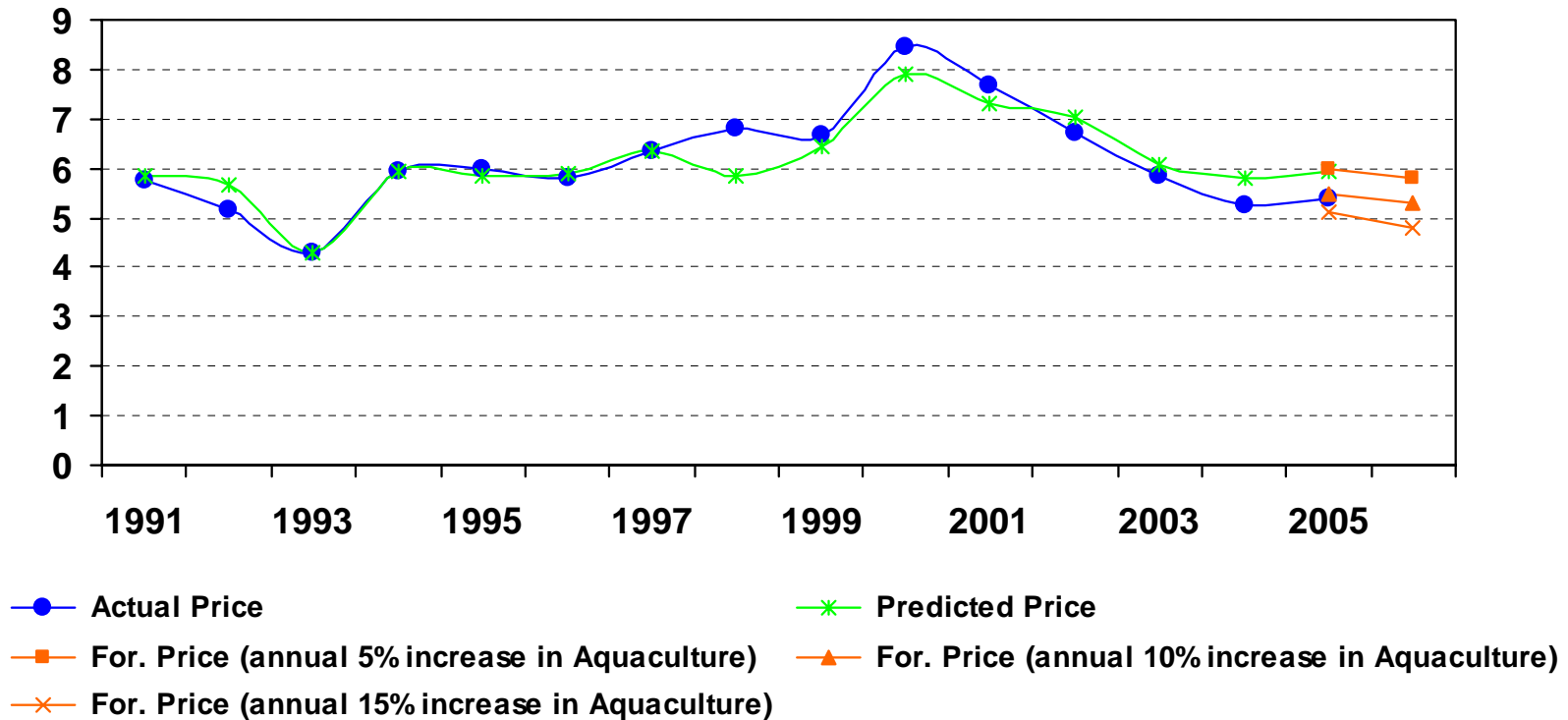


Source: Kansai Commodity Exchange (2005)

France: Price Expectations

Page: 9 to 17

Euros/kg French Price Forecast for a Range of Aquaculture Output*



*2% annual increase in per capita GDP, 0.4% annual increase in population.

Conclusion

- **If production expectations are met in 2006, prices are expected to be:**
 - **Stable or increase in the US**
 - **Stable or increase in Japan**
 - **Stable in France.**

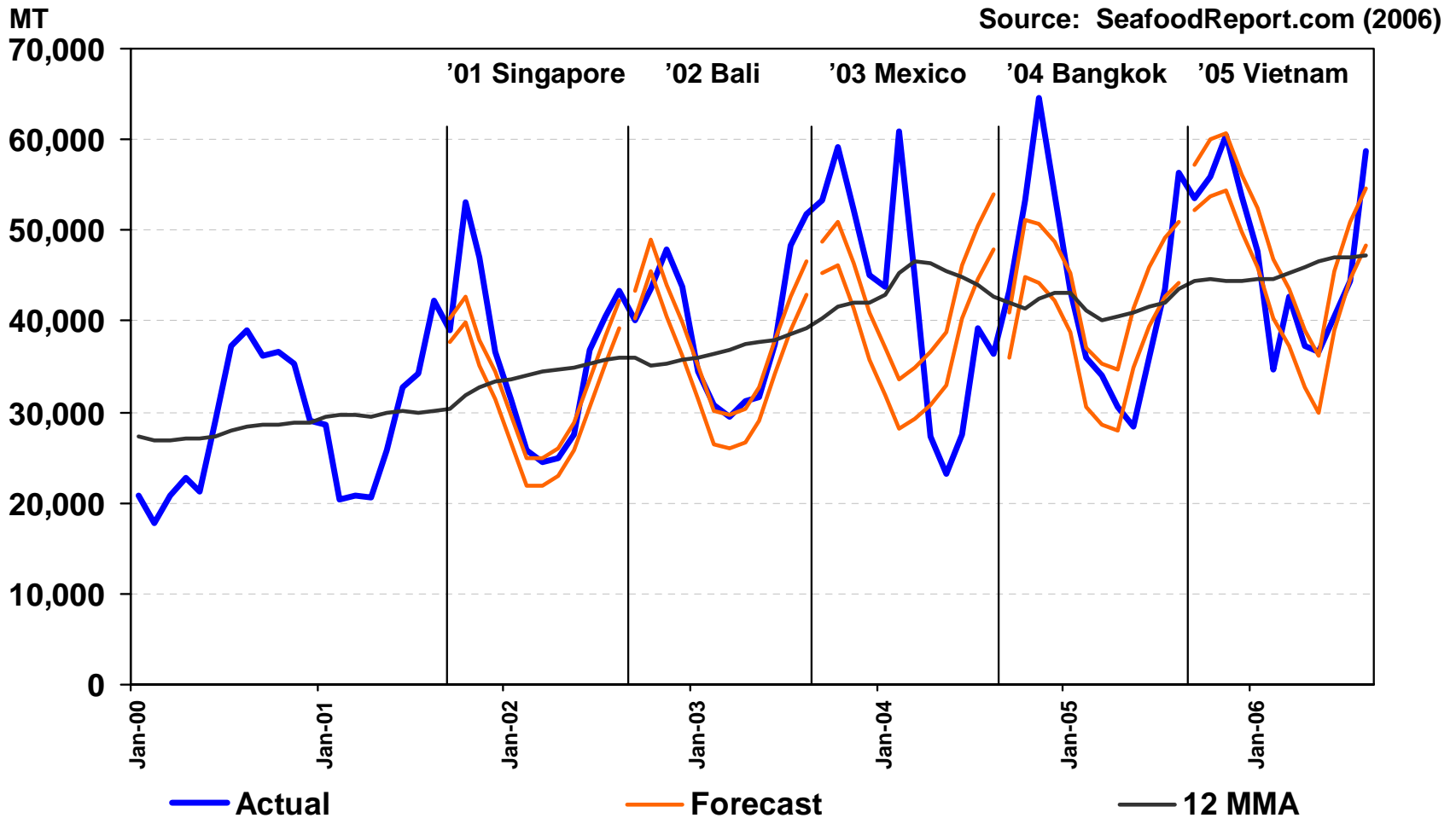
Biggest Risks:

Disease, Antibiotics, Trade Barriers & Litigation

- **Need to be more market driven**

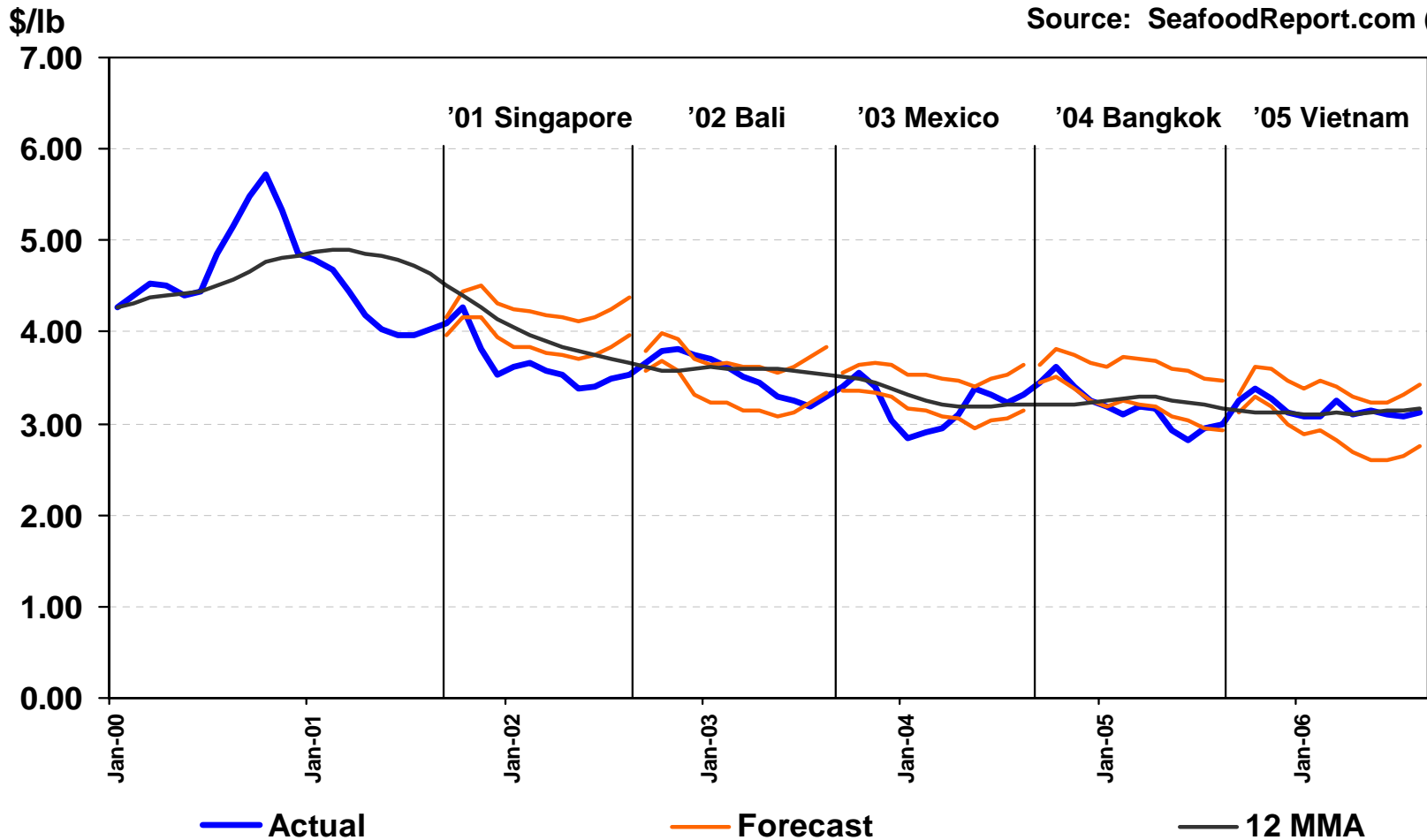


US Shrimp Import Forecasts (2001-2005) V Actual



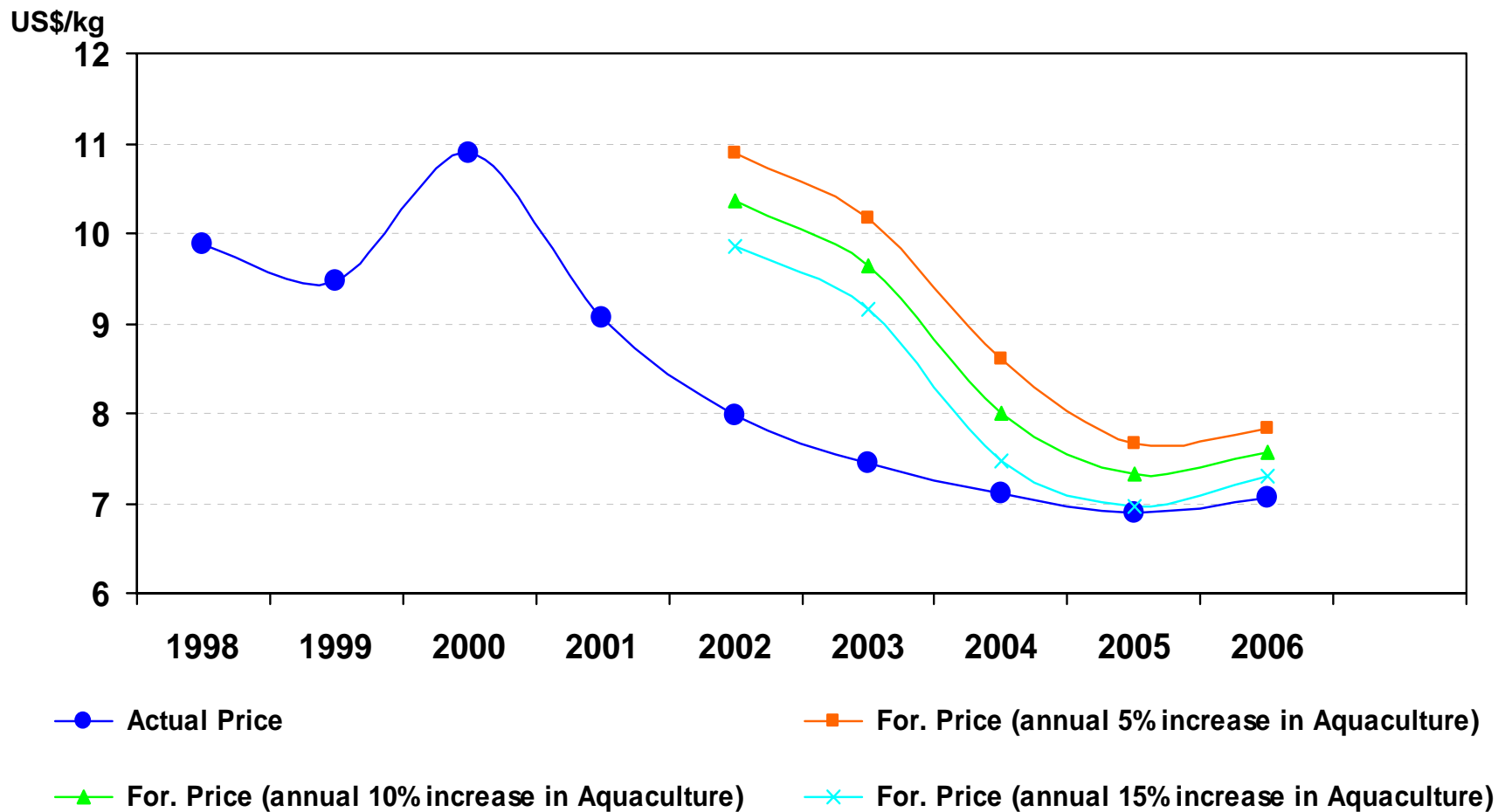
US Shrimp Price Forecast (Aug 2001-2005) V Actual

Source: SeafoodReport.com (2006)



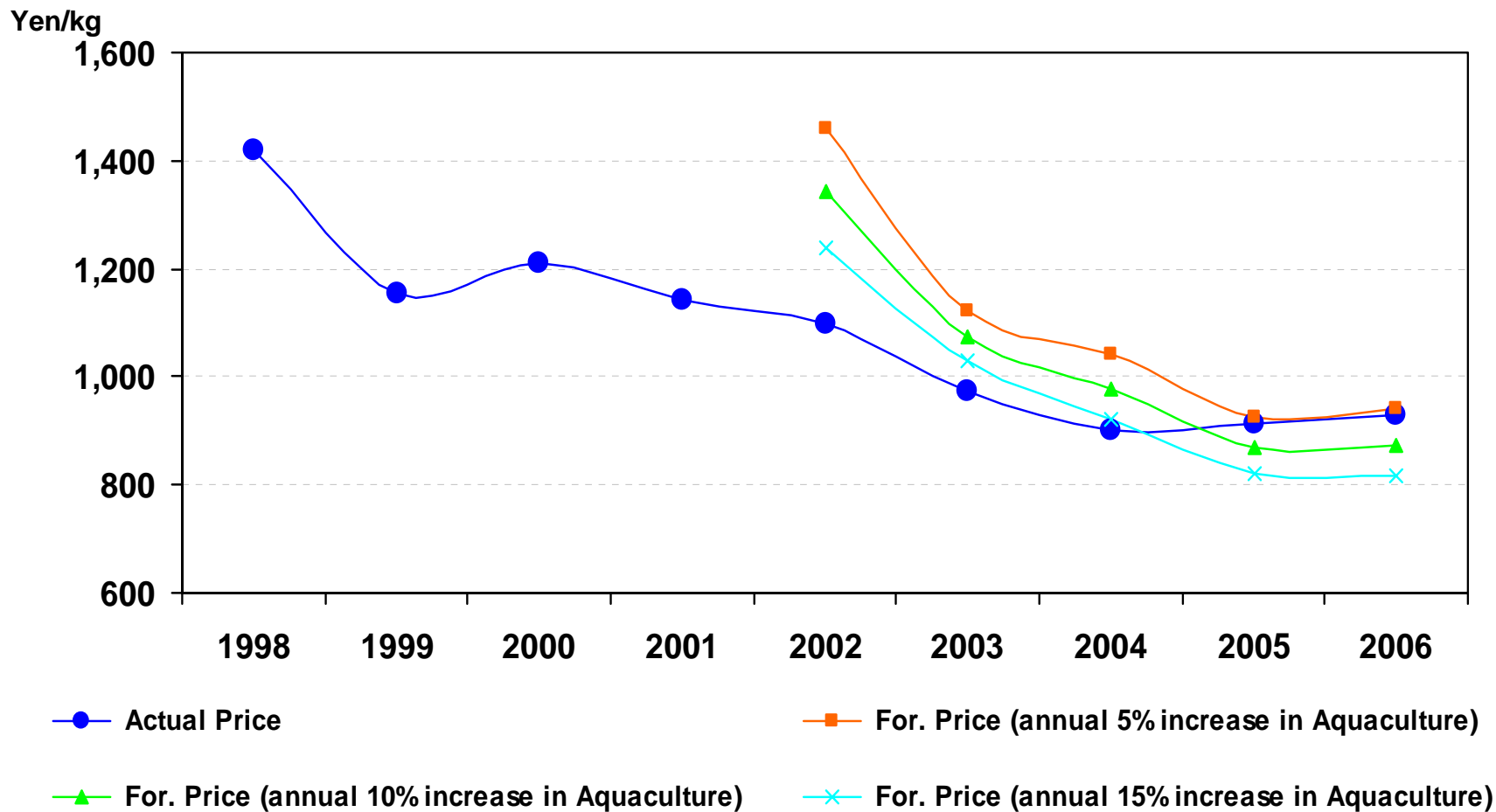
US Price Expectations – Actual vs. Forecast

2001-2005



Japan Price Expectations – Actual vs. Forecast

2001-2005



France Price Expectations – Actual vs. Forecast

2001-2005

