

NOAA Aquaculture Listening Session Expert Presentation

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Presented by:

Dr. Barry Costa-Pierce, Professor of Fisheries & Aquaculture at the University of Rhode Island & Director of the Rhode Island Sea Grant College Program

Where we've been

- Global context of US aquaculture**
- Status**

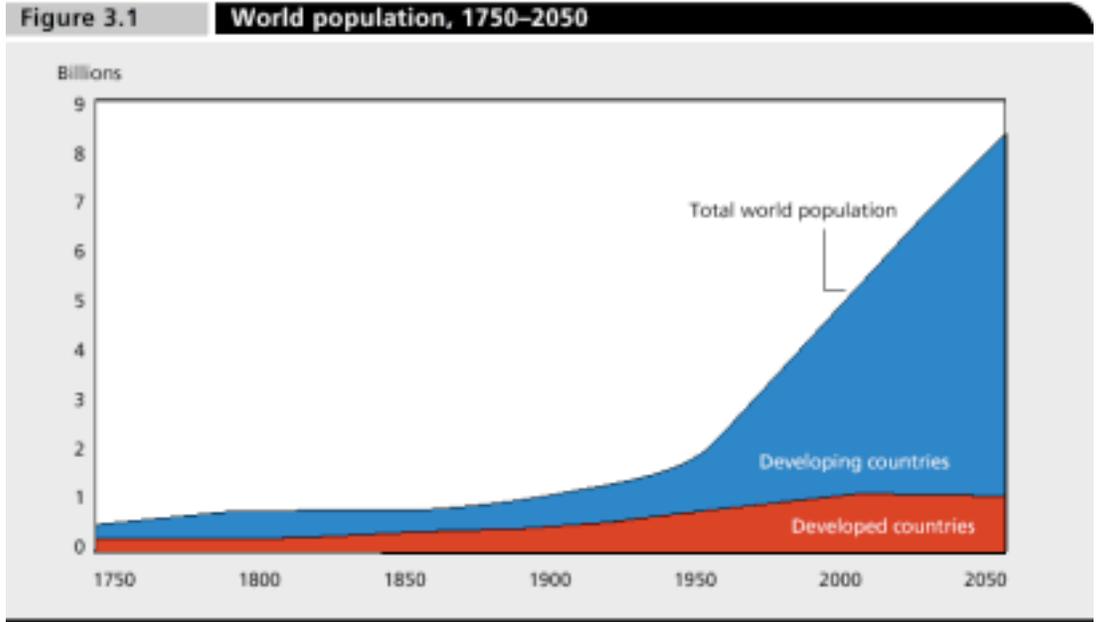
Where we could go

- Strengths + Opportunities**

What could divert us from being a global power by 2050

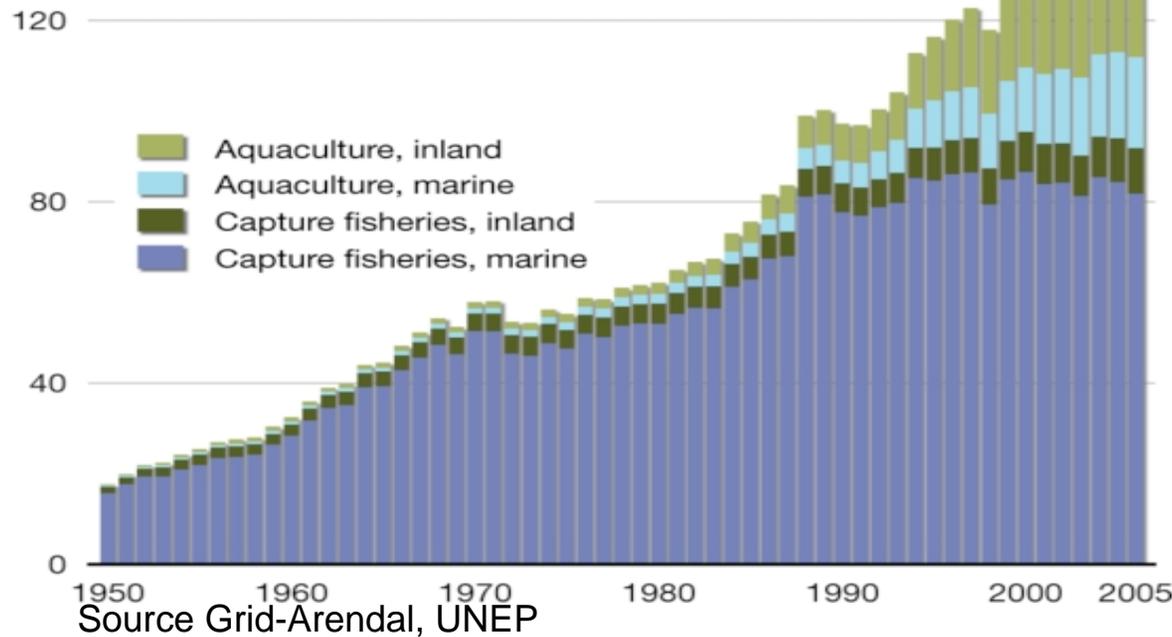
- Challenges + Threats**

DRIVING FORCES
FOR GLOBAL
EXPANSION OF
AQUACULTURE:
1) GLOBAL POPULATION
GROWTH
2) CAPTURE FISHERIES
AT MAXIMUM HARVESTS



Source: World Bank

World fisheries and aquaculture production (million tonnes)



Global aquaculture production will have to at least double in the next 20 years to meet projected demand for seafood

A major importer...less of a producer...

US consumption *increasing* (1998 to 2008) – **14.9 to 16.0 lbs.**

US imports *increasing* (2000 to 2009) - **290 to 420 mil lbs.**

Results

Imports are 80% of supply = food security

Seafood trade deficit is \$10 billion/year = exporting talent, economy

US SEAFOOD TRADE
IMBALANCE (2007):

\$10 BILLION



EXPORTS
\$4 billion

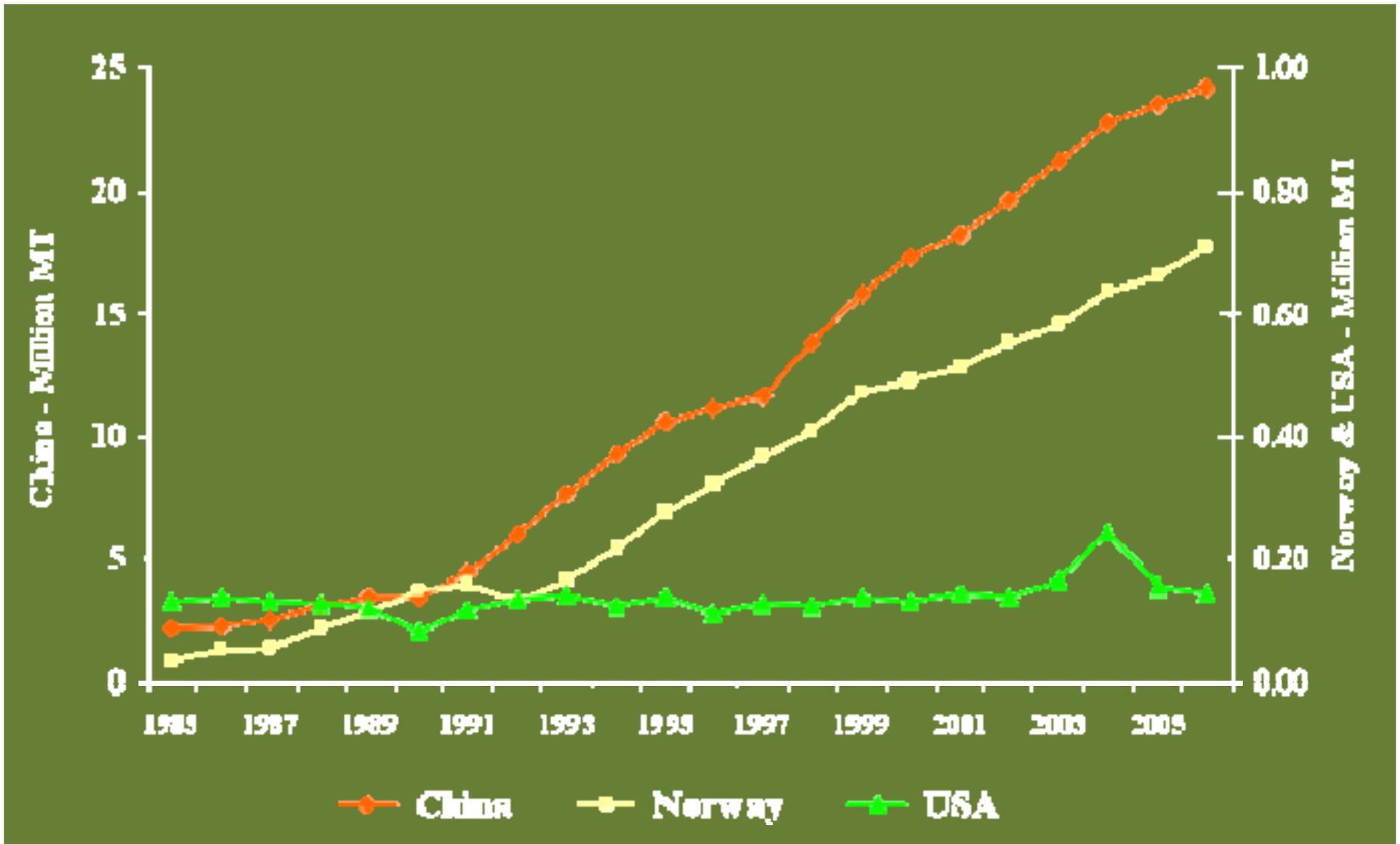
IMPORTS
\$14 billion

Second largest importer ~4X more than China

Importers

| | | | |
|--------------------------|--------|--------|------|
| Japan | 16 140 | 14 560 | -1.0 |
| United States of America | 7 043 | 11 967 | 5.4 |
| Spain | 2 639 | 5 222 | 7.1 |
| France | 2 797 | 4 176 | 4.1 |
| Italy | 2 257 | 3 904 | 5.6 |
| China | 856 | 3 126 | 13.8 |
| United Kingdom | 1 880 | 2 812 | 4.1 |
| Germany | 2 316 | 2 805 | 1.9 |
| Denmark | 1 415 | 2 286 | 4.9 |
| Republic of Korea | 718 | 2 233 | 12.0 |

GROWTH OF AQUACULTURE IN THE USA IS FALLING BEHIND OTHER NATIONS



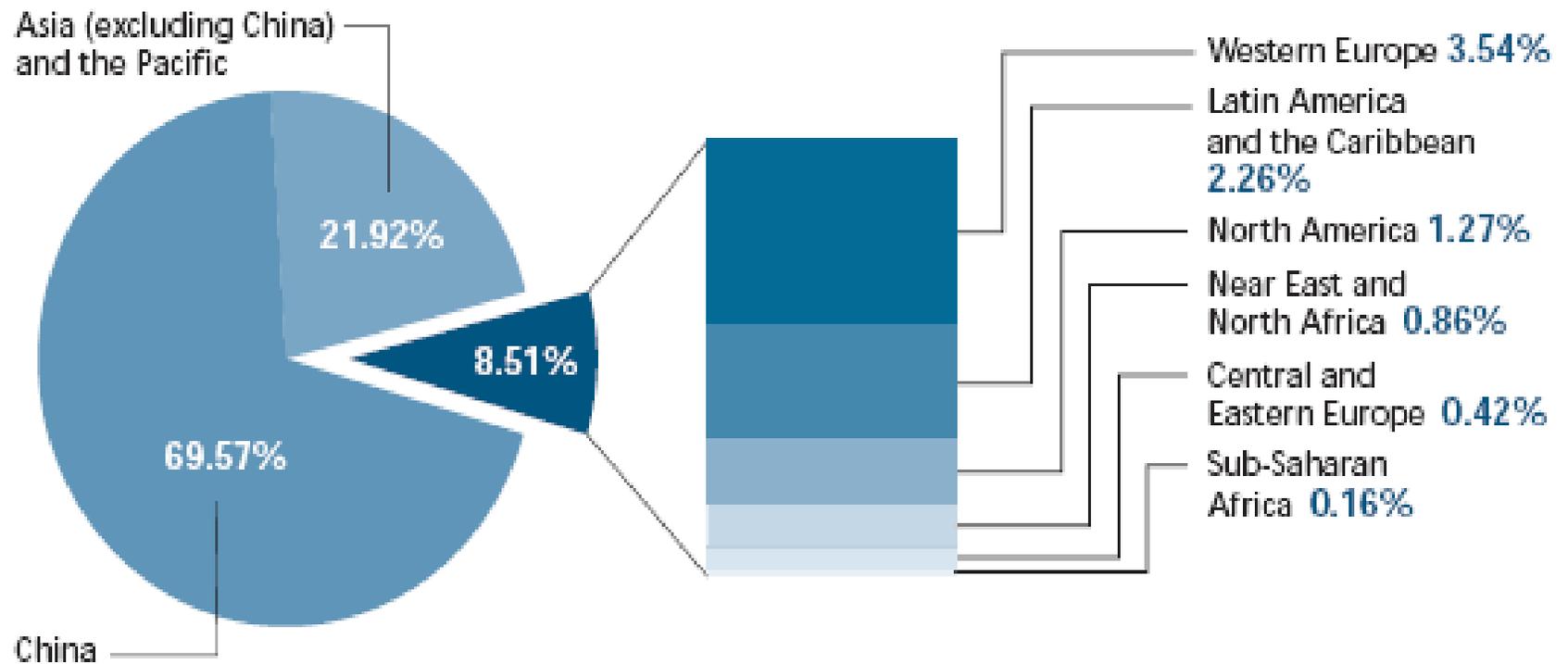
SOURCE:FISHSTAT 2008

Top ten aquaculture producers of food fish supply: quantity and emerging growth

| Producer | 2002 | 2004 | APR |
|----------|-----------------|------|---------------------|
| | <i>(Tonnes)</i> | | <i>(Percentage)</i> |

Top ten producers in terms of quantity, 2004

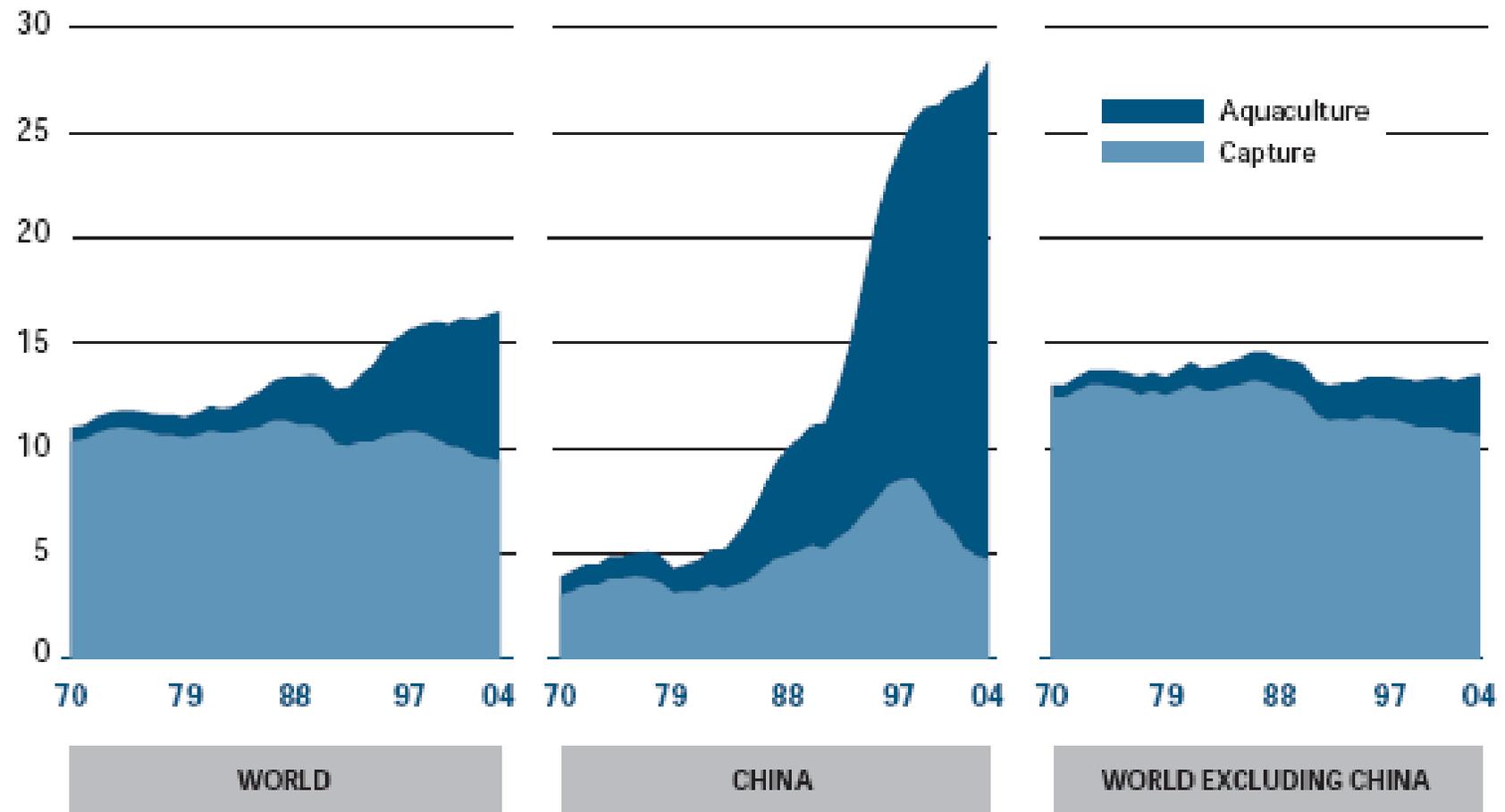
| | | | |
|--------------------------|-------------------|-------------------|------------|
| China | 27 767 251 | 30 614 968 | 5.0 |
| India | 2 187 189 | 2 472 335 | 6.3 |
| Viet Nam | 703 041 | 1 198 617 | 30.6 |
| Thailand | 954 567 | 1 172 866 | 10.8 |
| Indonesia | 914 071 | 1 045 051 | 6.9 |
| Bangladesh | 786 604 | 914 752 | 7.8 |
| Japan | 826 715 | 776 421 | -3.1 |
| Chile | 545 655 | 674 979 | 11.2 |
| Norway | 550 209 | 637 993 | 7.7 |
| United States of America | 497 346 | 606 549 | 10.4 |
| TOP TEN SUBTOTAL | 35 732 648 | 40 114 531 | 6.0 |
| REST OF THE WORLD | 4 650 830 | 5 353 825 | 7.3 |
| TOTAL | 40 383 478 | 45 468 356 | 6.1 |



North America = USA, Canada, Mexico = 1.27%

Relative contribution of aquaculture and capture fisheries to food fish consumption

Fishery food supply (kg/capita)



Opportunities

Global R&D Leader. Why Not a Global Leader in Production?

Hatchery technologies

Feeds

Systems – Recirculating, Tanks, Offshore Cages, Moorings

Planning/Governance/Marketing - Ecological & sustainable aquaculture

A Globally Important Provider of Aquafeeds?

Fishmeal - China largest importer - 1.6 MMT (2005)

*Price increases \$855 to \$1800/MT (2005-2010)

*Climate change – El Nino 6.3 MMT (1988-2003) to 5.0 (2007)

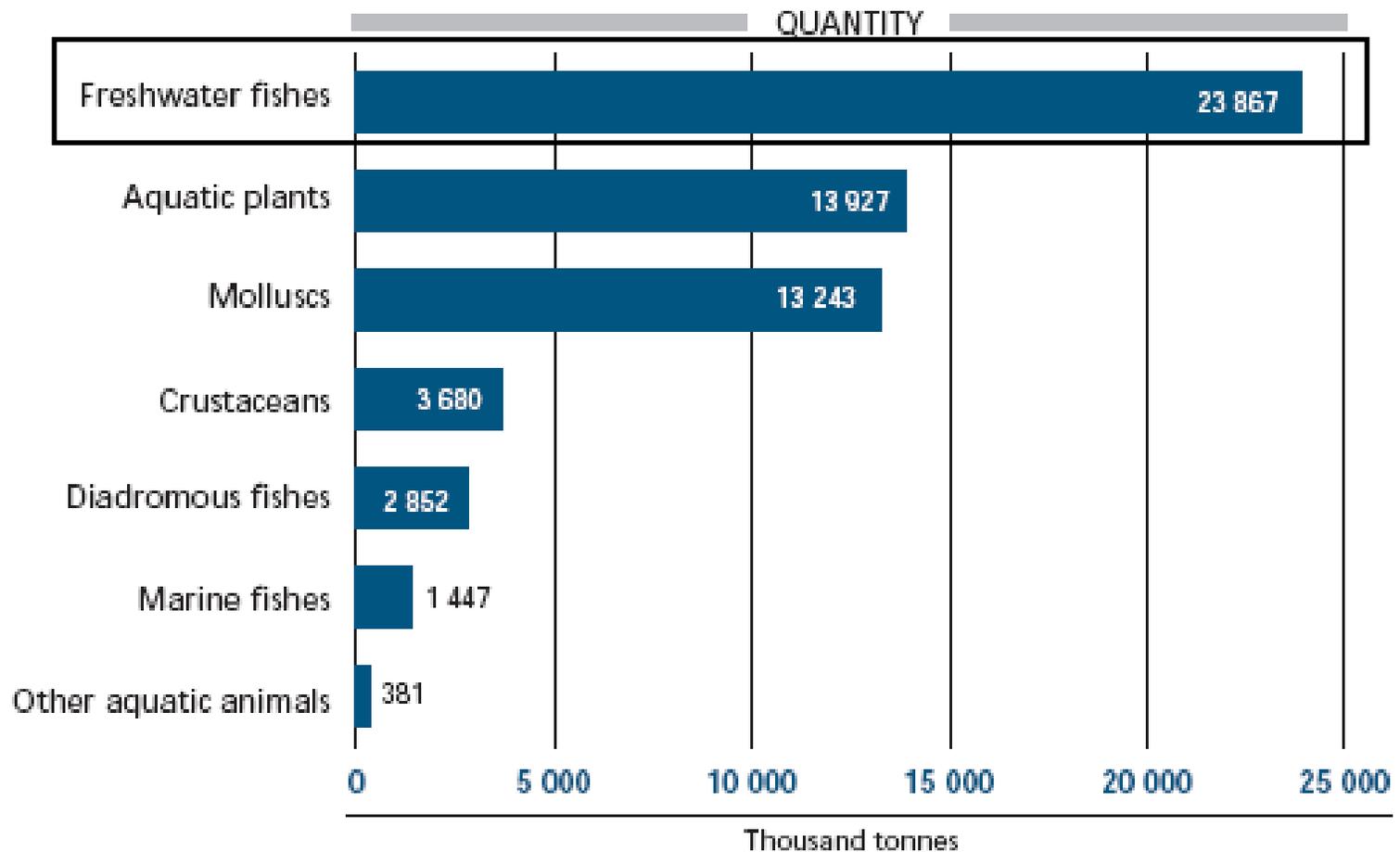
Ag meals/oils

Ave dietary inclusion of fishmeal dropped 1995-2006

USA largest soybean producer 88.4 MMT (34% total) (2009)

China largest importer

The EVOLUTION of the Blue Revolution



Challenges + Threats

Fisheries Partnerships (next slide)

*Wild and Farmed and Recreational
and Biodiversity and Conservation*

Regulatory Frameworks Outmoded

Miscommunication/Education

Lack of Scaling –

Lack of R&D/ Coop Research Centers

Marine and inland capture fisheries: top ten producer countries in 2004

