



THE OHIO STATE UNIVERSITY

COLLEGE OF FOOD, AGRICULTURAL,
AND ENVIRONMENTAL SCIENCES

Aquaculture Industry Overview

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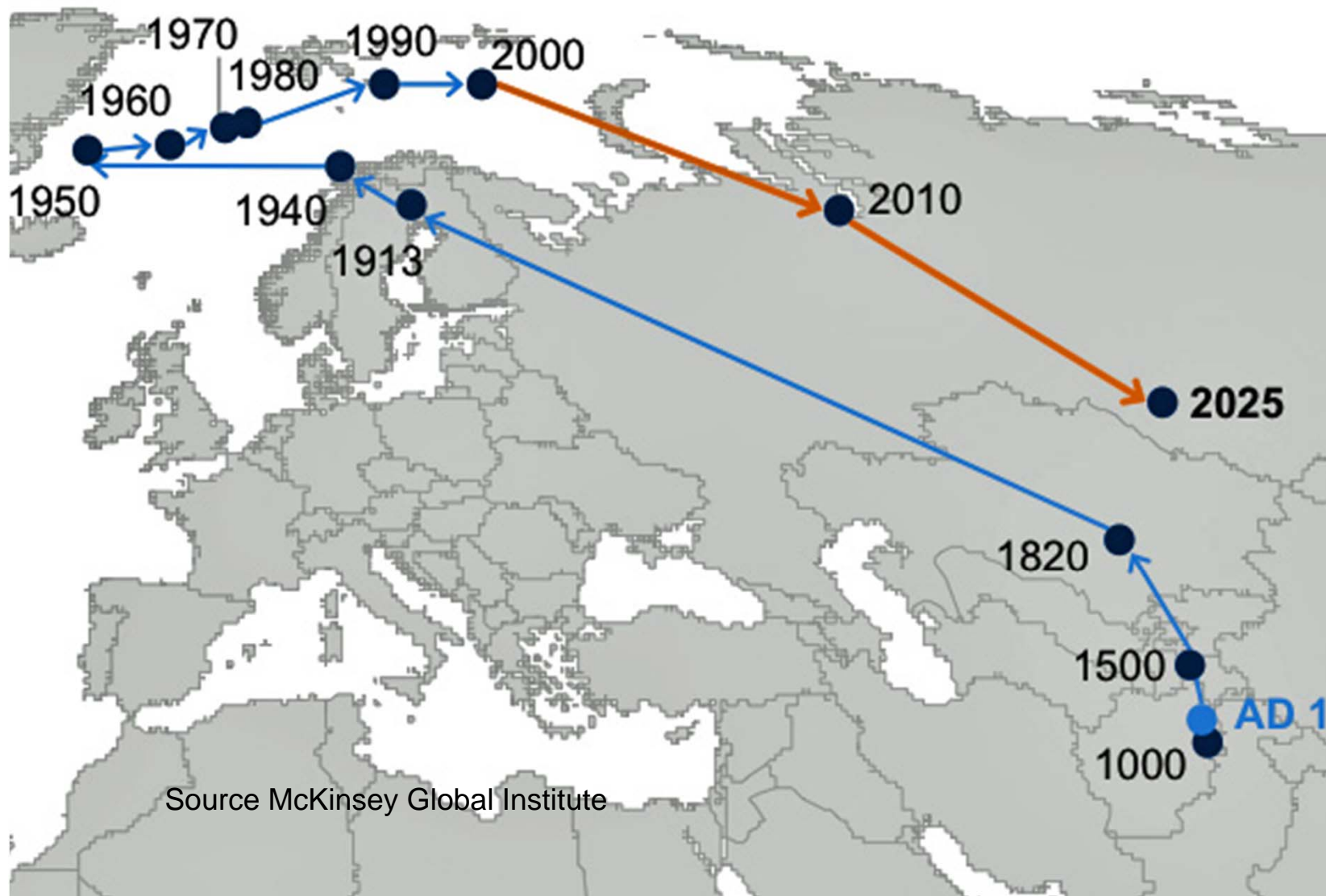
- Global
- National
- Regional
- State



Presentation excerpts from: Chris Weeks, Patrick Soorgelous, Max Holtzman and the FAO.



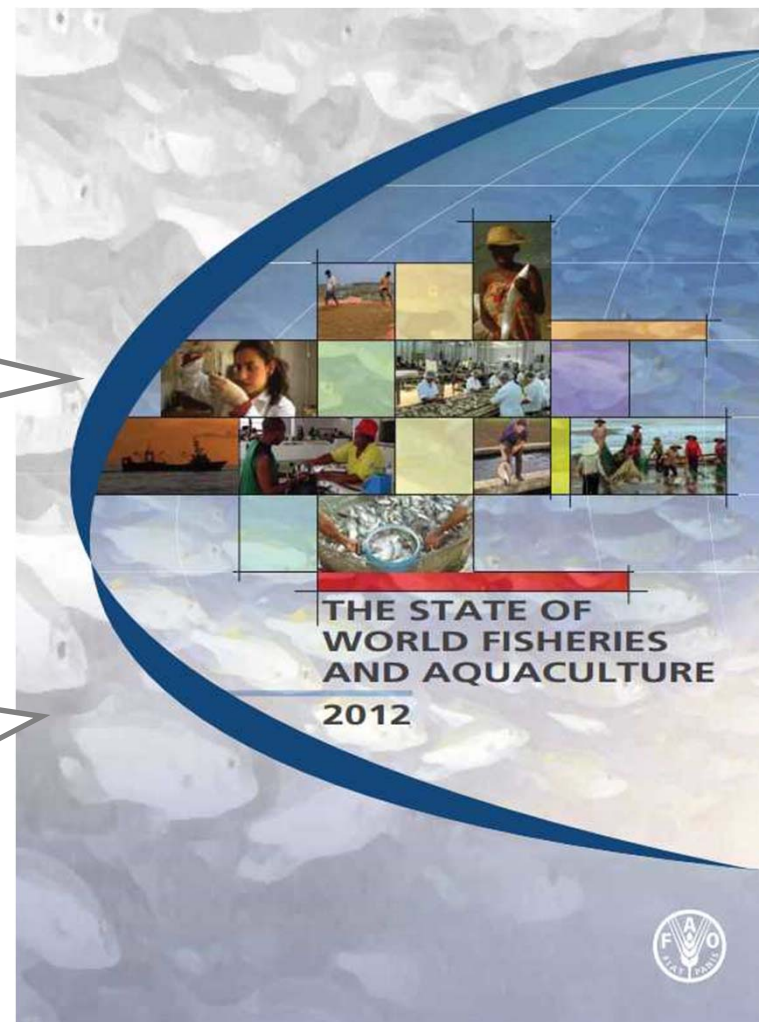
Worlds Economic Center of Gravity





"Aquaculture is probably the fastest growing food-producing sector, and currently accounts for almost **50% of the world's food fish** and is perceived as having the greatest potential to meet the growing demand for aquatic food."

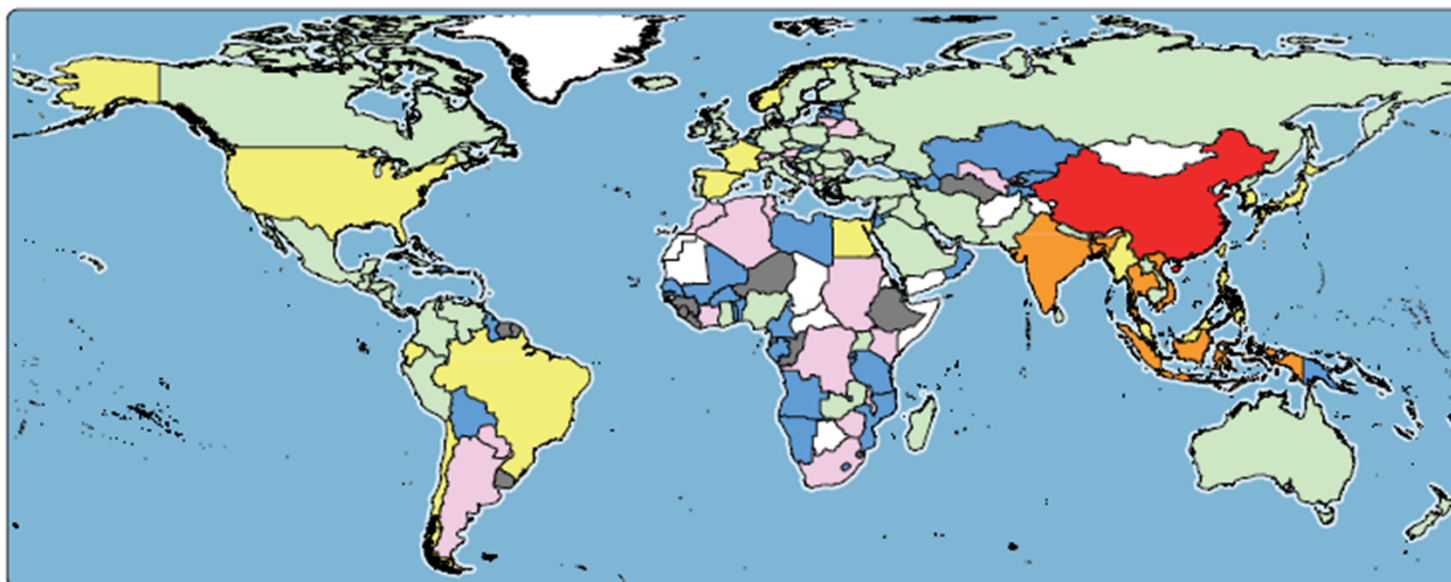
"Given the projected population growth over the next two decades, it is estimated that by 2030 at least an additional **40 million tons/year** of aquatic food will be required to maintain the current per caput consumption."





Aquaculture production of aquatic animals for human consumption (tonnes)

2009



Source: FAO-FI (www.fao.org/fishery)

Data on aquaculture production of aquatic plants worldwide are not included in this map.

Global production of aquatic animals for human consumption from aquaculture continued to grow substantially in the past decade, reaching the annual production level of 55.7 million tonnes in 2009 from 32.4 million tonnes in 2000. Aquaculture has been the fastest-growing animal food producing sector. Aquaculture contributed nearly half (47.3 percent) of the world's food fish consumption, up from 33.8 percent in 2000. With stagnating global capture fishery production and an increasing population, aquaculture is perceived as having the greatest potential to produce more fish in the future to meet the growing demand for safe and quality aquatic food.

The designations employed and the presentation of material in the map do not imply the expression of any opinion whatsoever on the part of FAO concerning the legal or constitutional status of any country, territory or sea area, or concerning the delimitation of frontiers.

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Aquaculture Production



The underlying data used to create this map was derived from World Aquaculture Production (Quantities and values) Dataset 1960-2009, released in March 2011 by Statistics and Information Service, Fisheries and Aquaculture Department, Food and Agriculture Organization of the United Nations (FAO). The data in their format used here were extracted from the Dataset using Pictorial Plus - Universal software for fishery statistical data series (available at www.fao.org/fishery/statistics/software/pplus). However, users can also use FishStat, the new generation of the Pictorial Plus software (available at www.fao.org/fishery/topix/18236w).



www.fao.org



Asia Rules!

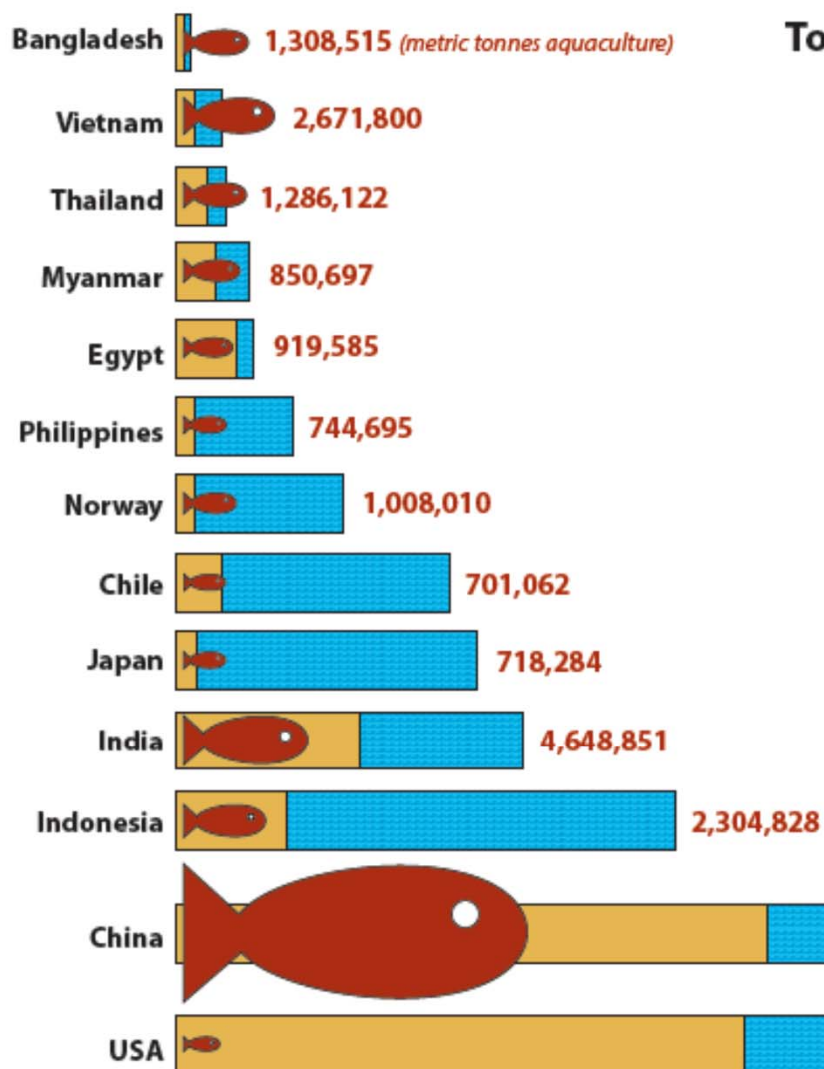
- **89 % of world production in Asia**
- **61.4 % in China**
- **2.2% Africa**
- **2% Norway**
- **1% US**
- **97 % of fish farmers in Asia**



Top 10 producers 2010:

World	Tonnes	Percentage
China	36 734 215	61.35
India	4 648 851	7.76
Viet Nam	2 671 800	4.46
Indonesia	2 304 828	3.85
Bangladesh	1 308 515	2.19
Thailand	1 286 122	2.15
Norway	1 008 010	1.68
Egypt	919 585	1.54
Myanmar	850 697	1.42
Philippines	744 695	1.24
Other	7 395 281	12.35
Total	59 872 600	100

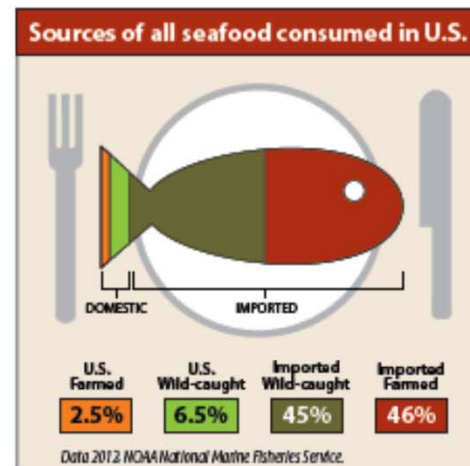
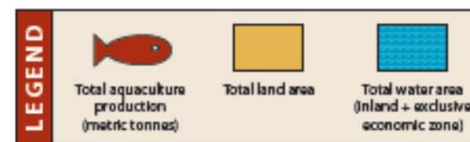
Source: FAO – SOFIA 2012



2010. UN Food and Agriculture Organization

Top 13 Aquaculture Producers Worldwide

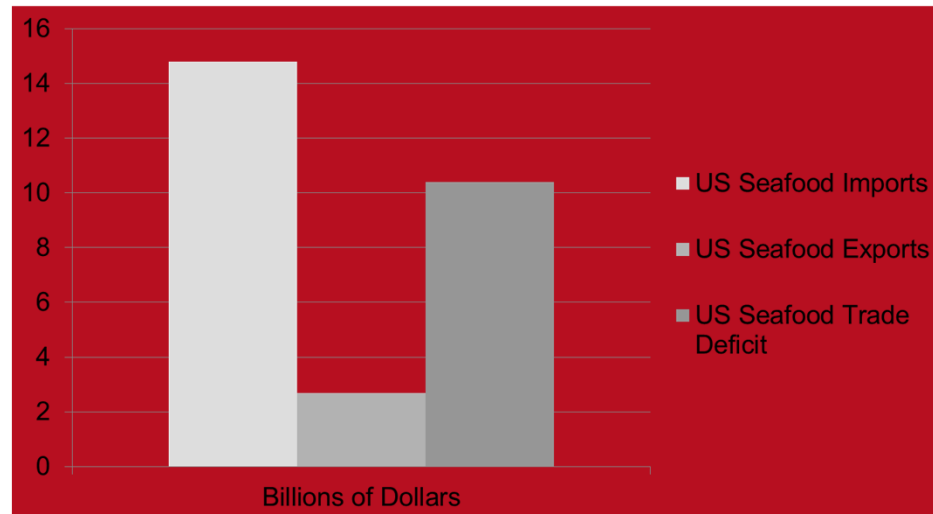
Total aquaculture production
in relation to land and water resources





2010 US Seafood Deficit

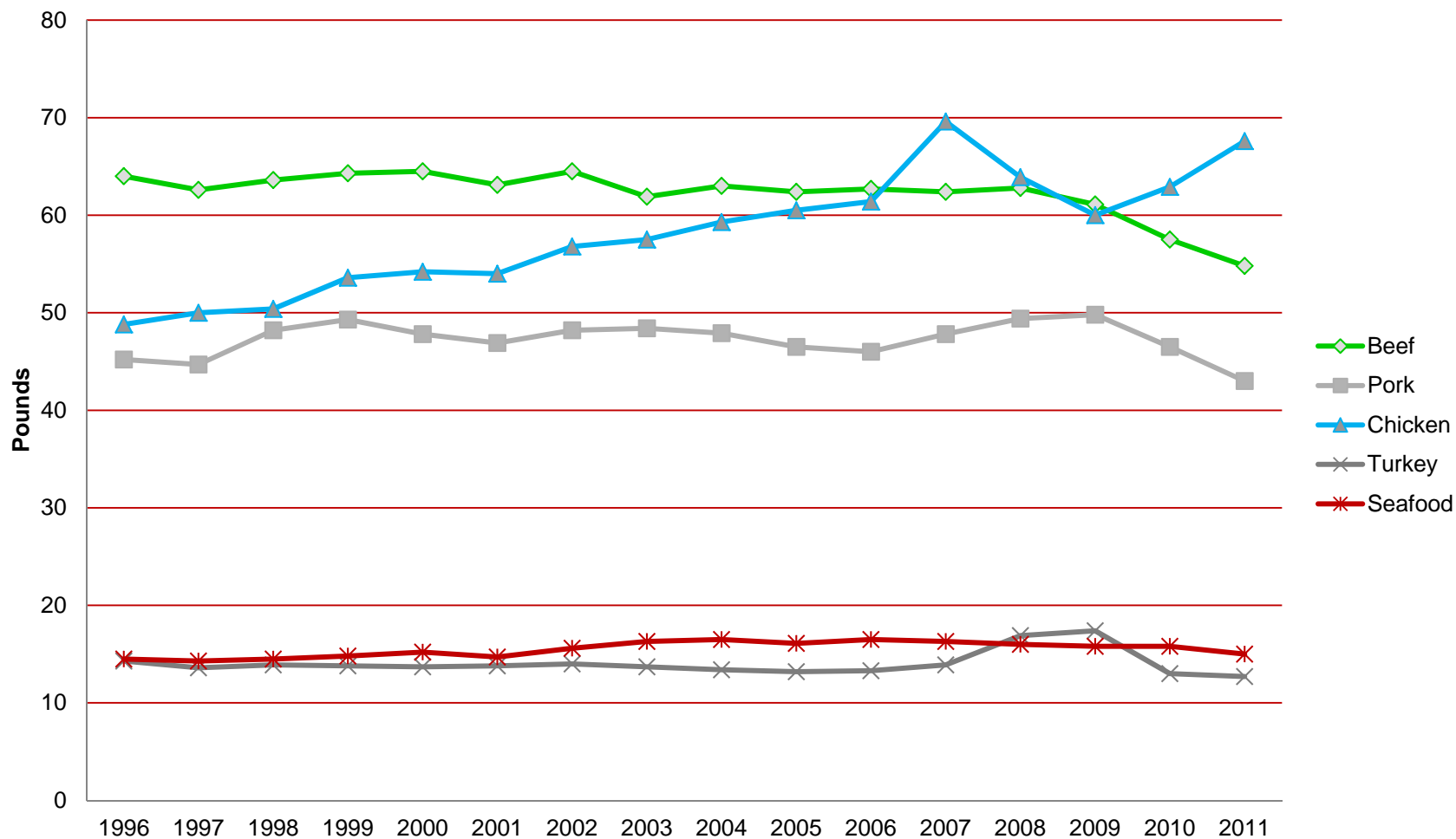
- The US imports nearly **90%** of the seafood we consume
- **50%** of this comes from aquaculture
- We export **\$32** billion (FY 2012) in terrestrial agriculture products
- We import **\$11** billion of seafood products (FY 2011)
- As population and income increases in Asia, more seafood necessary for domestic demand
- We provide the safest highest quality products in the world



The current US trade deficit in fisheries products is \$10.8 Billion.



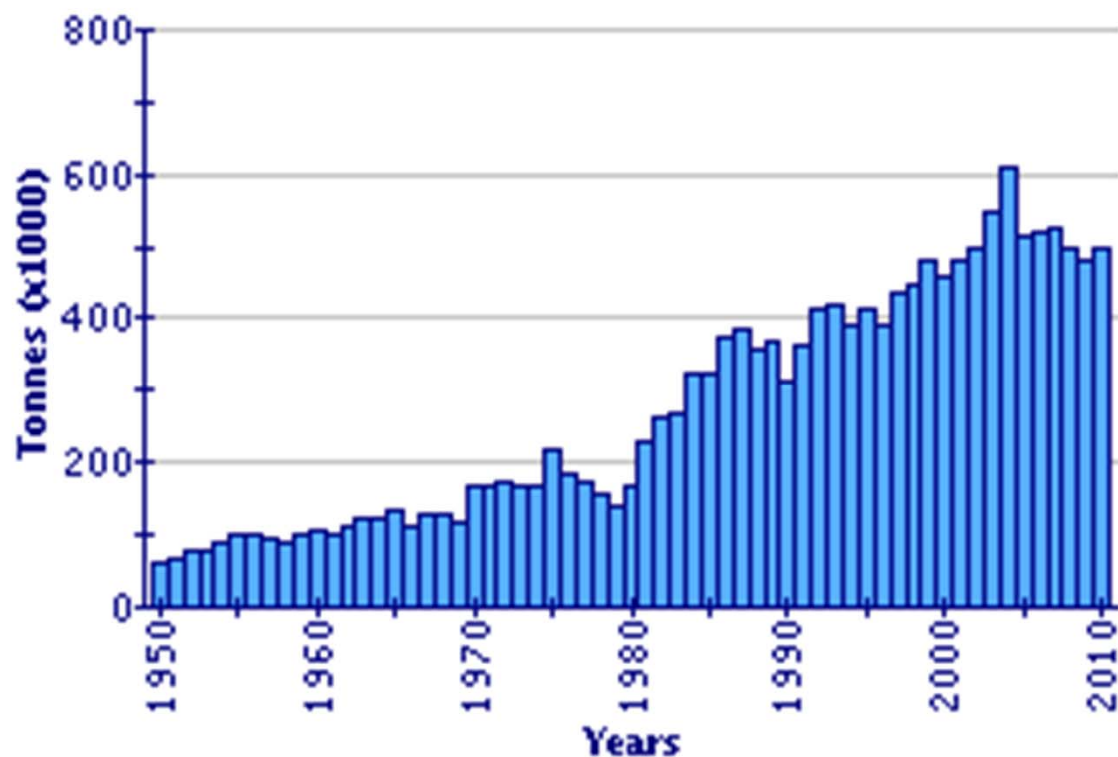
Per Capita Consumption





Aquaculture - Status

- ✓ US Consumers eat an average of 15 lbs. of fishery products per capita.
- ✓ 2010 USDA Dietary Guidelines for Americans recommends 26 lbs seafood annually per capita.
- ✓ Global per capita consumption of seafood is 17kg (34 lbs)
- ✓ Americans consumed 4.7 billion pounds of seafood in 2011, 91% of which was imported (86% in 2010).



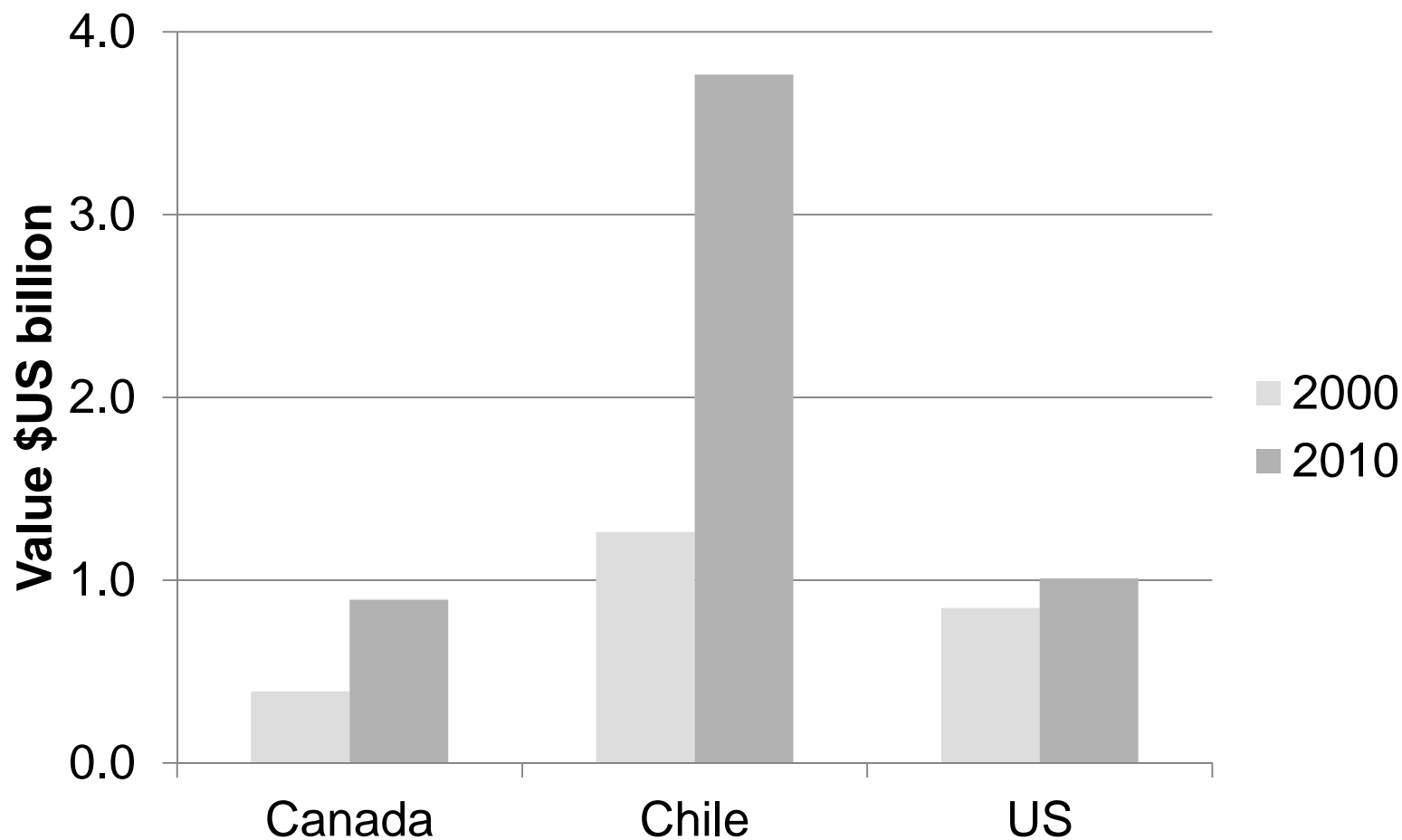
**Reported aquaculture production in United States of America
(from 1950)**

(FAO Fishery Statistic)

(Source: FAO Fishery Statistics, Aquaculture production)



Total Aquaculture Production



Source FAO 2013 database



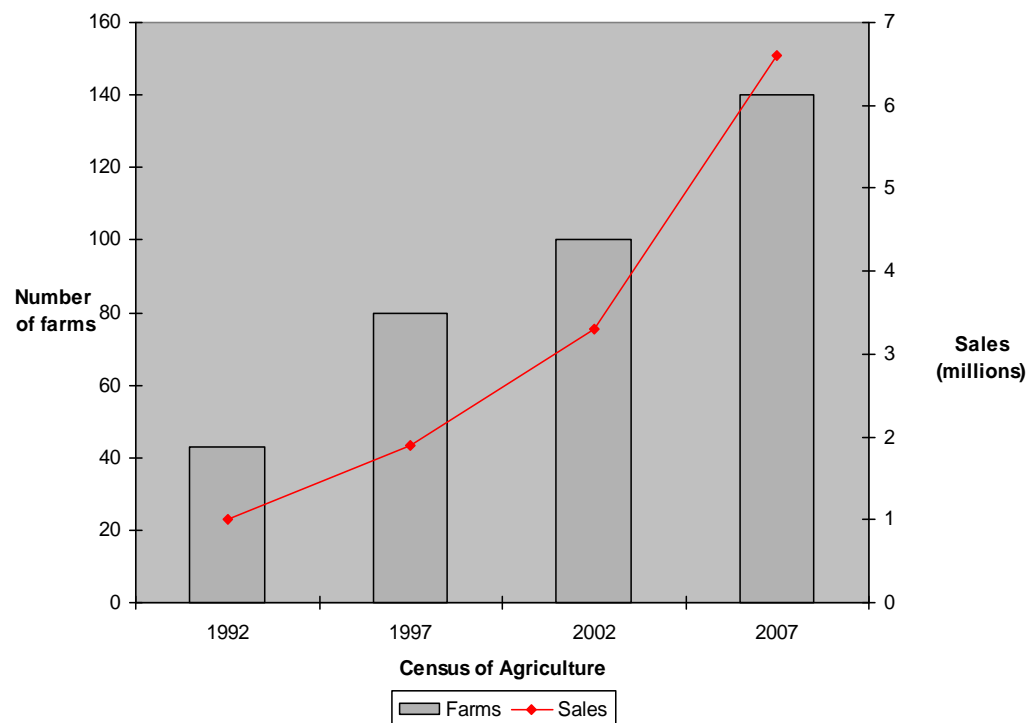
U.S. Economic Impact

- Farm-gate value: \$0.94 Billion
- Total value: \$5.6 Billion
- 181,000 full-time jobs
- One of the fastest growing sectors of U.S. agriculture since 1980's

Source: FAO Fishstat Plus Version 2.30 & Economic-wide impacts of U.S. aquaculture



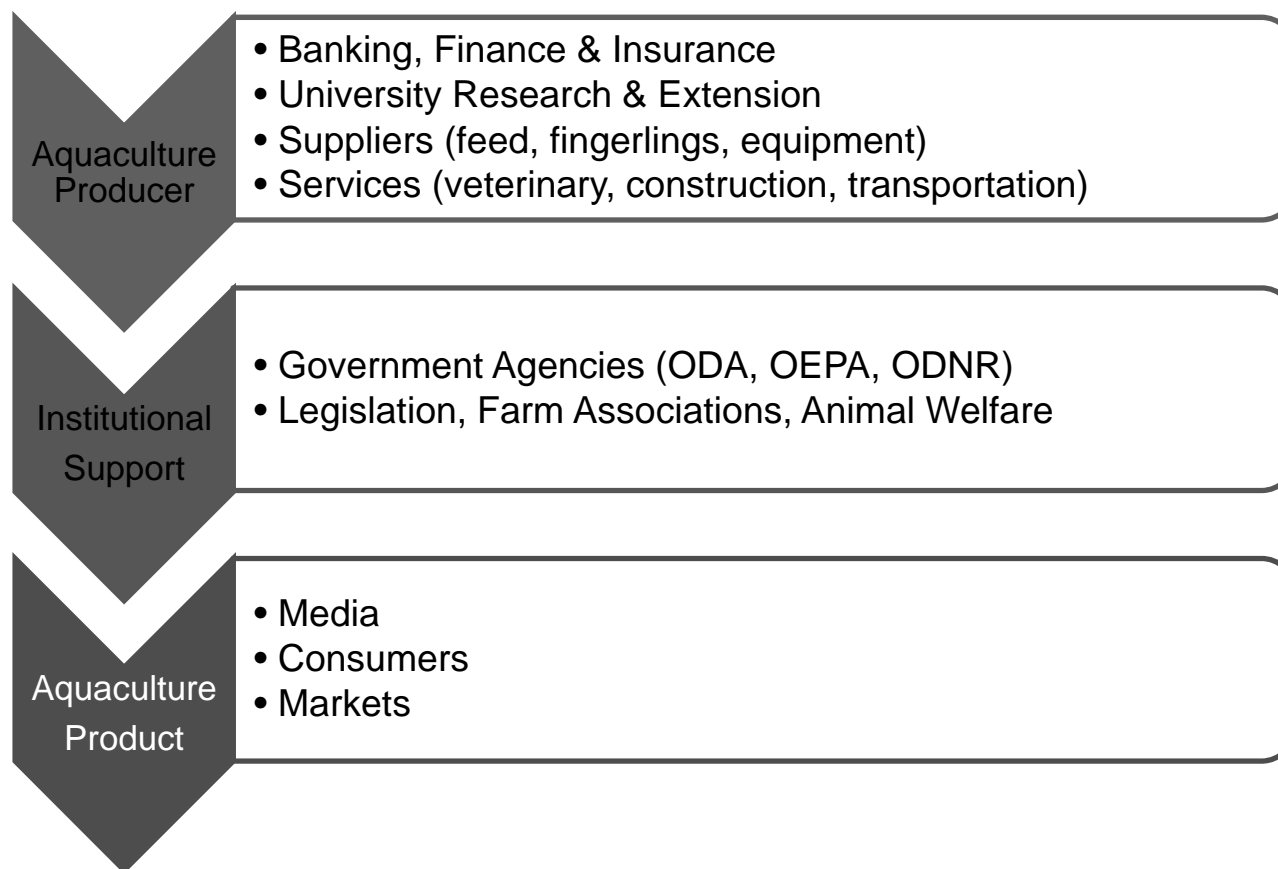
Aquaculture is growing in Ohio



- 173 farms with aquaculture permits in 2010
- 80% in business less than 10 years
- 87% plan to maintain or expand production
- 66 farms reported
 - ✓ 75 full time employees
 - ✓ 81 part time employees



Complex Aquaculture Industry





Challenges

- ✓ **Production cannot keep up with demand**
- ✓ **Major producers tend to be older in age and highly productive new facilities are rare**
- ✓ **Increased burden due to restrictive regulations**
- ✓ **Financing through lenders extremely difficult to obtain**



Barriers to Aquaculture

- ***Lack of advocacy***
 - Lack of industry advocacy and leadership in Washington has been deterrent to the development of commercial aquaculture in the US
- ***Public awareness/Aquaculture has a bad image***
 - NGO anti-aquaculture claims go unchallenged
 - Arby's fish commercial
- ***Lack of capital markets***
 - Lack of investment
 - Not on financial institutions radar
- ***No interest in congress***
 - No aquaculture caucus
 - 1980's last National Aquaculture Act
 - Supports the regulatory mess
 - Need a federal aquaculture executive
- ***Lack of a competitive advantage***
 - The US is a lousy place to start a business
 - US fiscal and monetary policies must change to be competitive



- Aquaculture plays a role in feeding the growing world population
- Must find economical and environmentally sustainable ways to produce more food.
- So what's inhibiting growth?
 - Multi-disciplinary research expanded to improve
 - ❖ Production efficiency
 - ❖ Economic viability
 - ❖ Long term sustainability
 - ✓ Genetics
 - ✓ Nutrition
 - ✓ Food safety
 - ✓ Human health
 - Disaster assistance programs to reduce risks
 - Streamline regulations
 - ❖ USDA
 - ❖ Dept of Commerce
 - ❖ Department of Interior
 - ❖ Army Corp of Engineers
 - ❖ EPA



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