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Professor Ragnar Tveteras is a business economist at the University of Stavanger’s Department for Industrial Economics, Risk Management and Planning. His research focuses primarily on aquaculture and seafood markets.

As a writer and lecturer, he maintains relationships with authorities and private decision makers at the regional, national and international levels.
Fish Production Estimates & Trends, 2013-2014

Ragnar Nystoym
Ragnar Tveetersa
Acknowledgements

• Organizations: GAA, Urner Barry, Norwegian Seafood Council, Eurostat, FAO, Apromar, IMF.

Scope of Analysis

• Most focus on internationally traded species:
  • Typically imported to USA, Europe & Japan.

• Production forecasts for 2013 for all chosen species:
  • But for some species only major producer countries/regions.

• Global production forecast for 2014 almost all species.
Finfish Species Included in Analysis

**Freshwater**
- Tilapia
- Catfish
  - Pangasius
  - Channel catfish, etc.
- Carp

**Diadromous**
- Salmon & Trout
  - Atlantic salmon
  - Coho salmon
  - Trout

**Marine**
- Barramundi
- Milkfish
- Seabass & Bream
- Flatfishes
  - Olive Flounder
  - Atlantic Halibut
  - Turbot
- Cobia
- Atlantic cod
- Bluefin tuna
- Grouper
FRESHWATER
TILAPIA
Tilapia
Global Aquaculture Production

Sources: 1990-2011: FAO; 2012-2015: Kevin Fitzsimmons; Prices US import frozen fillet: NMFS.
Note: Prices are January-December averages, except for 2012 (January-August average)
Average of estimates from several sources.
PANGASius
Pangasius Production in selected countries

<table>
<thead>
<tr>
<th>Year</th>
<th>Vietnam</th>
<th>Thailand</th>
<th>Indonesia</th>
<th>India</th>
<th>Bangladesh</th>
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<tbody>
<tr>
<td>2012</td>
<td>313,333</td>
<td>423,15</td>
<td>305,000</td>
<td>300,000</td>
<td>340,667</td>
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<tr>
<td>2013</td>
<td>1,415,750</td>
<td>486,62</td>
<td>971,000</td>
<td>560,000</td>
<td>644,000</td>
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<tr>
<td>2014</td>
<td>1,100,000</td>
<td>560,000</td>
<td>920,000</td>
<td>644,000</td>
<td>800,000</td>
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<tr>
<td>2015</td>
<td>1,100,000</td>
<td>644,000</td>
<td>800,000</td>
<td>800,000</td>
<td>900,000</td>
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</table>

Sources: Kontali, Dr. P.E.Vijay Anand, M Siva Prasad and several anonymous.
Pangasius
Production in Vietnam and EU import real import price (EUR kg)

Total production of Catfish species
Excl. pangasius

Sources: FAO, Kontali and miscellaneous anonymous.
Total production of Catfish species
US unit import price catfish products

Sources: FAO, Kontali. Prices: Urner Barry.
DIADROMOUS
SALMONIDS
Atlantic Salmon Production and EU15 real import price fresh gutted from Norway

<table>
<thead>
<tr>
<th>Year</th>
<th>Production (metric tonnes)</th>
<th>EU real import price (EUR/kg)</th>
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<tbody>
<tr>
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<td>646,516</td>
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<td>1999</td>
<td>1,399,700</td>
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<tr>
<td>2000</td>
<td>1,497,500</td>
<td></td>
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<tr>
<td>2001</td>
<td>1,446,900</td>
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<tr>
<td>2002</td>
<td>1,468,900</td>
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<tr>
<td>2003</td>
<td>1,497,500</td>
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<td>2004</td>
<td>1,468,900</td>
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<td>2005</td>
<td>1,622,900</td>
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<td>2014</td>
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Atlantic Salmon
Production by country

Production in Metric Tonnes

Source: Kontali
Coho Salmon
Total Production and Real Export Price on Chilean Coho Frozen Round

Sources: FAO, Kontali, NSC
Coho Salmon Production by country

Source: Kontali
Rainbow Trout
Total Marine Production and Chilean frozen USD/kg (blue) and Norwegian fresh EUR/kg (red) real export prices

Sources: FAO, Kontali, NSC. Note: Prices are annual averages except 2013 (January-July average).
Trout production in Latin America, excl. Chile

Barramundi / Asian Seabass
Barramundi
Total production by major producing Countries

Source: FAO
Barramundi
Production forecasts for selected countries

Sources: FAO (2002-2010) and anonymous sources (2011-2013)
MARINE
SEA BREAM AND BASS
Seabass & Sea Bream
Mediterranean Production

Production in metric tonnes

Source: FEAP, Kontali (2006-2013)
Seabass & Sea Bream
Mediterranean Production & Real Italian Import Price

Production Sea Basses and Brems
Real price fresh whole seabass
Real price fresh Gilthead seabream

Production (metric tonnes)
Real Price (Euro per kilo)

Source: FEAP, Kontali, Eurostat
FLATFISHES
Olive Flounder
Production and real farmgate price

Turbot Production in selected countries excl. China

Sources: FAO, Kontali.
Atlantic Halibut Production

Cobia
Major Producing Countries until 2011

Source: FAO
Farmed Cobia
Estimates for Vietnam, Taiwan, and Panama

Metric Tonnes

ATLANTIC COD
Atlantic Cod
Total Farmed Production and Norwegian Export price

Production in metric tonnes

Real price in Euro per kg

Sources: Norwegian Directorate of Fisheries (1989-2004), Kontali (2005-2013), Norwegian Seafood Council (Prices). Note: Prices 2001-12 are annual averages, price in 2013 is Jan-July average.
TUNAS
Bluefin Tuna
Total Production and US real import price fresh

Sources: Production - Apostolos Tzoumas; import price- NMFS. Note: Prices 2002-2011 are annual averages, price in 2012 is January-August average.
MUSSELS
Total Mussel Production

Sources: Kontali and misc. sources
Summary

Finfish
Aquaculture Production of Fish Species and 10-year growth rate
1990-2011

Double in a decade

Source: FAO
Aquaculture Production of Fish Species and Seafood Price Indices 1990-2011

Source: FAO
Diadromous Species
Annual Percent Growth Rates
2010-2013

- Milkfish, Philippines: 1.5, 3.8, 6.6
- Barramundi (AU, IN, TW): 0.8, 4.4, 5.2
- Trout, Latin America: -17.7, 5.7
- Rainbow trout: 3.1, 14.5
- Coho salmon: 7.1, 13.7, 18.0
- Atlantic salmon: 1.7, 12.2, 22.0

2013: [Red]
2012: [Green]
2011: [Blue]
## Freshwater Species
### Annual Percent Growth Rates 2010-2013

<table>
<thead>
<tr>
<th>Species</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
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</thead>
<tbody>
<tr>
<td>Channel Catfish</td>
<td>1.4</td>
<td>5.2</td>
<td>8.0</td>
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<tr>
<td>Pangasius, Vietnam</td>
<td>1.0</td>
<td>5.2</td>
<td>10.0</td>
<td>23.0</td>
</tr>
<tr>
<td>Carp, China</td>
<td>-4.2</td>
<td>7.0</td>
<td>5.2</td>
<td></td>
</tr>
<tr>
<td>Tilapia</td>
<td>4.6</td>
<td>6.3</td>
<td>13.2</td>
<td></td>
</tr>
</tbody>
</table>

-40.0 | -30.0 | -20.0 | -10.0 | 0.0 | 10.0 | 20.0 | 30.0
Marine Species
Annual Percent Growth Rates
2010-2013

-42.3
-39.2
-25.3
-28.8
-0.1
-1.1

-40.0
-20.0
0.0
20.0
40.0
60.0
80.0

Sea bass & bream, Medit.

Olive flounder; Korea Rep.

Turbot, excl. China

Atlantic halibut

Atlantic cod

Bluefin tuna

Grouper

2013
2012
2011

-60.0
Production of Surveyed Species Excl. Carp in China, 2002-2014

<table>
<thead>
<tr>
<th>Year</th>
<th>Production in Million metric tonnes</th>
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<tbody>
<tr>
<td>2002</td>
<td>4.0</td>
</tr>
<tr>
<td>2003</td>
<td>4.6</td>
</tr>
<tr>
<td>2004</td>
<td>5.2</td>
</tr>
<tr>
<td>2005</td>
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<td>2006</td>
<td>6.7</td>
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<td>2007</td>
<td>8.1</td>
</tr>
<tr>
<td>2008</td>
<td>9.5</td>
</tr>
<tr>
<td>2009</td>
<td>9.6</td>
</tr>
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<td>2010</td>
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<td>2012</td>
<td>12.7</td>
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<tr>
<td>2013</td>
<td>12.5</td>
</tr>
<tr>
<td>2014</td>
<td>12.5</td>
</tr>
</tbody>
</table>
Production of Surveyed Species Excl. Carp in China, 2002-2014

![Graph showing production and growth percentages from 2002 to 2014.](image-url)
Production of Surveyed Species Excl. Carp in China 2002-2014

- Marine
- Diadromous
- Freshwater

Year:
- 2002: 0.2, 1.7, 2.1
- 2003: 0.2, 1.7, 2.6
- 2004: 0.3, 1.9, 3.1
- 2005: 0.4, 2.0, 3.7
- 2006: 2.2, 4.3, 5.5
- 2007: 0.4, 5.5, 6.8
- 2008: 0.4, 6.8, 6.9
- 2009: 0.4, 6.9, 7.8
- 2010: 2.3, 7.8, 8.5
- 2011: 0.4, 8.5, 9.3
- 2012: 0.5, 9.3, 9.1
- 2013: 0.4, 9.1, 9.1
- 2014: 0.4, 9.1, 9.1
Growth Rates by Species Groups
(2003-2013 average growth rate in parenthesis)

- Freshwater (7.2%)
- Diadromous (5.8%)
- Marine (6.9%)
Growth Rates by Species Groups excl. Carp in China
(2003-2013 average growth rate in parenthesis)
Production of Surveyed Whitefish Species
Excluding Carp in China, 2002-2014

Year | Production in Mill. metric tonnes
-----|----------------------------------
2002 | 2.3
2003 | 2.9
2004 | 3.3
2005 | 3.9
2006 | 4.7
2007 | 5.9
2008 | 7.1
2009 | 7.3
2010 | 8.2
2011 | 8.9
2012 | 9.7
2013 | 9.5
2014 | 9.5
Production of Surveyed Whitefish Species Excluding Carp in China, 2002-2014

<table>
<thead>
<tr>
<th>Year</th>
<th>Production in Mill. metric tonnes</th>
<th>% growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>25.0</td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td>16.8</td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td>18.0</td>
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<tr>
<td>2005</td>
<td>18.8</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>25.5</td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>22.0</td>
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</tr>
<tr>
<td>2008</td>
<td>1.8</td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>13.2</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>9.2</td>
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<tr>
<td>2011</td>
<td>10.0</td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>-5.0</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>0.0</td>
<td></td>
</tr>
</tbody>
</table>
Production of Surveyed Whitefish Species and Average Import Prices Frozen whole
Excluding Carp in China, 2002-2014

Source prices: Norwegian Seafood Council
Did they double in a decade?
Percentage growth 2003-2013

- Pangasius, Vietnam: 495.7%
- Atlantic halibut: 392.3%
- Channel Catfish: 315.5%
- Trout, Latin America: 214.4%
- Barramundi (AU, IN, TW): 194.0%
- Tilapia: 177.3%
- Atlantic cod: 133.9%
- Sea bass & bream, Medit.: 127.9%
- Turbot, excl. China: 83.9%
- Atlantic salmon: 77.7%
- Coho salmon: 69.8%
- Milkfish, Philippines: 59.2%
- Carp, China: 52.1%
- Rainbow trout: 45.0%
- Grouper: 26.2%
- Olive flounder; Korea Rep.: 14.4%
- Bluefin tuna: 1.0%
Did they double in a decade?
Percentage growth 2003-2013

- Marine: 87.4%
- Diadromous: 72.4%
- Freshwater ex. Carp China: 243.4%
- Freshwater: 98.8%
- TOTAL EX. CARP CHINA: 171.3%
- TOTAL: 95.0%
Thank You!