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# Global Farmed Finfish Production Outlook: Slower-paced growth

4 November 2016

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**In GOAL 2016 survey, production short of 'doubling in a decade'**

Global production of farmed tilapia continues to increase in many countries, and robust markets continue to expand for both whole fish and fillets. Photos by Darryl Jory (left) and Cesar Alceste (right).

This is a summary of some of the findings from the Global Aquaculture Alliance's survey on finfish and mussel species. A presentation of the production estimates, co-authored by Ragnar Nystoyl, Ragnar Tveteras and Darryl Jory, was recently presented at the GOAL 2016 conference in Guangzhou, China.

The estimates are based on a global survey of many responders undertaken by GAA, coordinated by Jory, and estimates from Kontali. Production figures until 2014 are largely based on The United Nations' Food and Agriculture Organization (FAO) Fishstat database. The Norwegian Seafood Council and the U.S. National Marine Fisheries Service (NMFS) has provided data on prices for several species. Table 1 provides a summary of finfish production volumes, and individual species and trends will be commented throughout this article.

Species	Production for 2014	Production for 2015	Production for 2016	Production for 2017	Production growth (%) 2014	Production growth (%) 2015	Production growth (%) 2016	Production growth (%) 2017
Atlantic salmon	2,228	2,315	2,168	2,270	2.9	-6.3	4.7	5.8
Coho salmon	134	162	147	135	20.9	9.4	7.8	3.5
Large rainbow trout	285	256	241	241	-10.1	-6.1	0	0.1
Small trout	565	604	621	639	6.8	2.7	3.0	5.4
Milkfish	1,037	1,102	1,121	1,163	6.3	1.7	3.8	6.8
Barramundi	68	82	86	91	20.7	5.1	5.4	11.2
Carp	24,318	25,913	27,408	28,656	6.6	5.8	4.6	5.5
Tilapia	5,308	5,339	5,550	5,798	0.6	4.0	4.5	9.5
Catfishes	3,000	3,128	3,190	3,426	4.3	2.0	7.4	11.9
Pangasius (Vietnam)	1,134	1,115	1,189	1,252	-1.7	6.6	5.3	10.8

## Tilapia

Tilapia, the most geographically diversified of all farmed fish species (as well as in other dimensions), has continued to add production over time, as shown in Fig. 1. It is expected to produce 5.6 million metric tons (MMT) in 2016, a 4 percent growth from 2015. Next year it is expected to grow by 4.5 percent to 5.8 MMT. This is still significantly lower than the average growth rate over the 2007-2016 period, which has been 9.5 percent.



Global production of farmed tilapia continues to increase in many countries, and robust markets continue to expand for both whole fish and fillets. Photos by Darryl Jory (left) and Cesar Alceste (right).

When we look at a representative price, U.S. import price for frozen fillets, we find that real prices have been between \$4 and 5 per kg since 2008. It decreased last year to \$4.50, and has on average been \$4.14 per kg during the first seven months this year. The substantial increase in production since 2008 has not lead to lower market prices, indicating that the demand for tilapia has also shifted with supply.

China is the leading tilapia producer, followed by Indonesia and Egypt. This year the average estimate of our sources is 1.7 MMT for China, almost 1.1 MMT for Indonesia, and 700,000 MT for Egypt. For all these countries, production is expected to increase next year. The range of estimates from different sources for China for 2016 is between 1.2 and 2 MMT, with an average of 1.7 MMT. In 2017, the range is between 1.3 and 2.1 MMT, with an average of 1.8 MMT.

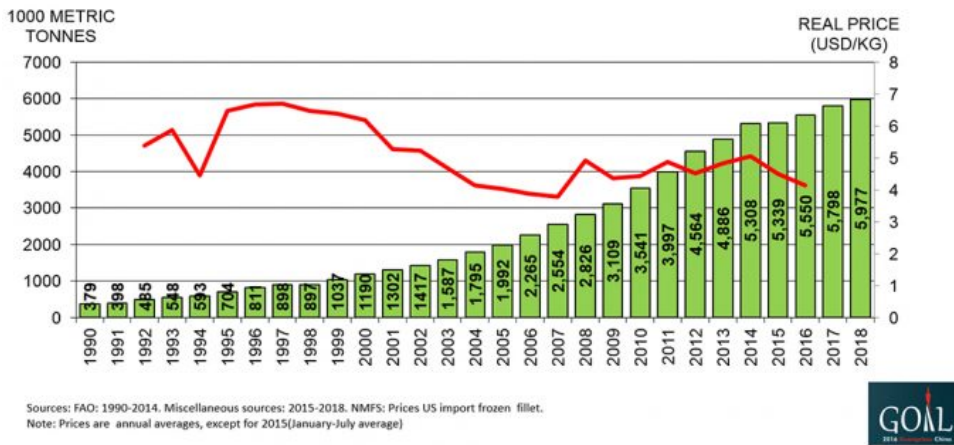


Fig. 1: Evolution of global production of farmed tilapia (1990-2018e), with U.S. import prices for frozen fillets.

## Pangasius

Pangasius production has declined globally since 2013, as shown in Fig. 2. Vietnam still represents around 50 percent of the production among the countries we report. The total production from those countries reporting is around 2.2 MMT in 2016, an increase from 2.1 MMT in 2011. Production is predicted to go up by 100,000 MT in 2017 to 2.2 MMT. When we take the averages of our sources Vietnam is estimated to experience an increase in production from 2015 to 2016, from 980,000 tons to 1.18 MMT. Production is expected to increase slightly in 2017, to 1.25 MMT.

Fig. 2: Pangasius production in selected countries. 2014-2018e.

U.S. and EU import prices have been declining since 2007. However, after 2013 the decline has been limited. In the first half of this year, to around \$2.9 per kg in the United States and slightly above \$2 per kg in the EU.

Global production of farmed Pangasius has been declining since 2013, but GOAL survey projections indicate a slight increase next year. Photo by Darryl Jory.

## Catfish

We are still struggling with data coverage for catfish. Vietnam, China, India, Indonesia and Bangladesh are among the largest producers, as shown in Fig. 3. Total production in those countries we cover has reached levels of 4.4 MMT in 2016, slightly higher than the previous year. Production is expected to increase to around 4.7 MMT next year.

Fig. 3: Total farmed production of catfish species, 2003-2018e.

## Salmonids

Atlantic salmon is expected to reach a global production of 2.17 MMT in 2016, down by 6 percent from 2015. Prices increased from 2015 to 2016, to almost \$10 per kg for Chilean fillet exports, and almost \$7 per kg for whole gutted salmon into the EU. Prices provide good margins for efficient salmon producers. Next year, global production is expected to increase only slightly.

The main producer of farmed Atlantic salmon, Norway, is estimated to have a production of 1.2 MMT in 2016, slightly lower than last year. Chile has experienced a significant decline, from 590,000 MT in 2015 to an estimated 470,000 MT this year.

Processing of Atlantic salmon fillets at a commercial plant. Photo by Darryl Jory.

Coho production dropped this year to 147,000 MT, down from around 162,000 MT in 2015. Next year production is expected to fall further. Since 2000, coho production has experienced considerable volatility, fluctuating between 100,000 MT and 180,000 MT.

Production of large-size rainbow trout in marine waters seems to be stabilizing at levels around 240,000 MT this year and the same for next year, down from around 256,000 MT in 2015, and well below the peak 2012 levels. Prices are up from the previous year's average level, at levels between \$5 to 6 per kg, but still well below peak levels of \$7 per kg.

The production of smaller trout, primarily farmed in freshwater, is still on an upward trend. Production is increasing by 3 percent to around 620,000 MT this year. Iran and Turkey together comprise around 40 percent of global production. In 2017, production is expected to increase further, by around 3 percent to 640,000 MT.

Fig. 4: Evolution of global production of farmed Atlantic salmon (1990-2017e), with real EU27 import prices for fresh whole gutted salmon and real U.S. import prices for fresh fillets.

## Marine species

Seabass and seabream production in the Mediterranean is estimated to decline this year by 3 percent to around 300,000 MT, as shown in Fig. 5. Next year, production is expected to jump by almost 10 percent to around 330,000 MT. Prices have not provided much incentive to grow production further, as they have been more or less stable since 2004 and have been declining from 2011 levels. We see that prices so far in 2016 are between \$6 and 7 per kg.

Fig. 5: Evolution of seabass and sea bream farmed production in the Mediterranean (1990-2017e), with real import prices in Italy.

Cobia production for the countries covered here – China, Taiwan, Panama and Vietnam – is estimated to be 44,000 MT in 2016, a modest growth from the previous year, which is expected to continue next year. Since 2010 production, has fluctuated around levels of 40 to 50,000 MT.

Fillets from farmed cobia (right) and pompano (left) – both species have significant potential for expansion of production in many areas. Photo by Darryl Jory.

## Total global production including carps

The total production of species and countries covered by our surveys are shown in Fig. 6. In 2014, our surveyed sectors covered 39 MMT of the almost 50 MMT produced in total, according to FAO. We see that production has increased from 19 MMT in 2003 to an expected level of 42 MMT in 2016.

What about growth rates? Doubling in a decade requires 7.2 percent annual growth. In Fig. 6 we have added percentage growth rates implied by these production figures. They are all on the positive side. In 2014, growth was around 0 percent, but then jumped to 5 percent in 2015, it is estimated at 4.2 percent in 2016 and is expected to be almost 5 percent in 2017.

Fig. 6: Production estimates for surveyed finfish species (including carps) during 2003-2017.

## Total production excluding carps

Fig. 7 shows global production estimates excluding carps. In 2014, our survey of the remaining fish species encompassed 14 MMT of the 50 MMT produced globally according to FAO. We see that production of these species has increased from 5.1 MMT in 2002 to 15 MMT in 2016.

We see a volatile growth pattern in terms of growth rates. Until 2012, most years have growth rates above 7.2 percent, which is the rate necessary to achieve doubling in a decade. But from 2012 on our data shows a downhill trend, with annual growth rates declining. In 2015, annual growth was estimated at 2.4 percent according to our figures. In 2016, it is expected to be only 1.4 percent, and in 2017 it is expected to recover to around 5 percent.

Fig 7. Production estimates for surveyed finfish species (excluding carps) 2003-2017.

## Double in a decade?

Finally, we asked if the species covered by our survey doubled their production in a decade. The story is mixed at the individual species level, as shown in Fig. 8, which shows species sorted by their estimated annual percentage growth rates from 2006 to 2016. We see that all the species from pangasius in Vietnam to catfishes more than doubled their production. The remaining species have estimated annual growth rates below 100 percent. In other words, they have not been able to double their production during the time period covered.

When we look at the larger species groups and their total in Fig. 9, we also find a mixed picture. Marine species were not able to double their production, with an estimated growth of 40 percent from 2006 to 2016. Diadromous species increased by 67 percent. Freshwater species increased by 158 percent when we exclude carps. If we include carps, the freshwater sector was not able to double its production, but did have increased production by 86 percent.

Fig. 8: Did they double in a decade? Annual percentage growth estimates, 2006-2016.

What about the total? The total growth rate when we include carps is at 83 percent. When we exclude carps, we see a more impressive total development, with a growth of 116 percent. But remember that most of the growth happened in the first half of this 10-year period.

Fig. 9: Did they double in a decade? Annual percentage growth estimates, 2006-2016.

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