



ECONOMIC PERFORMANCE OF WORLD SEAFOOD INDUSTRY



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INTRODUCTION

Lecture provides overall introduction on the world fisheries and aquaculture performance:

- Production, consumption and trade;**
- Global performance, major producer countries and important species ;**

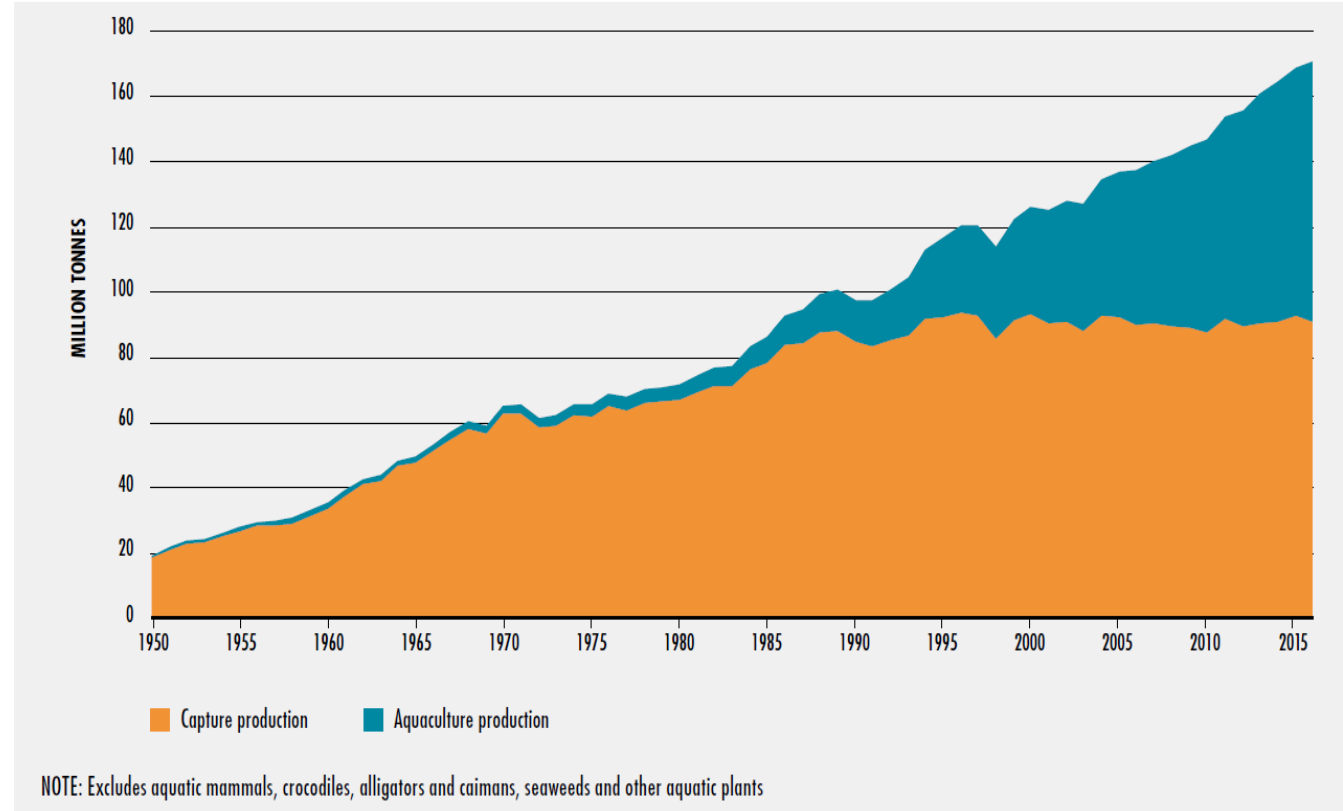
TERMINOLOGY

- **Fisheries vs. Aquaculture**
 - **Fisheries: wild capture**
 - + **Marine vs. inland capture fisheries**
 - **Aquaculture: farming/growing**
 - + **Marine/blackwater/freshwater aquaculture**
- **Species: Groundfish, pelagic fish, bivalves, cephalopods**
- **Tropical vs. Temperature fisheries**

WORLD PRODUCTION OF FISHERIES AND AQUACULTURE

In 2016: Global fish production peaked at 171 mil. tonnes, with aquaculture representing 47%.

The total first sale value estimated at \$362 billion, of which \$232 billion from aquaculture.



(Source: FAO 2018)

WORLD PRODUCTION AND CONSUMPTION

Category	2011	2012	2013	2014	2015	2016
Production						
(million tonnes)						
Capture						
Inland	10.7	11.2	11.2	11.3	11.4	11.6
Marine	81.5	78.4	79.4	79.9	81.2	79.3
Total capture	92.2	89.5	90.6	91.2	92.7	90.9
Aquaculture						
Inland	38.6	42.0	44.8	46.9	48.6	51.4
Marine	23.2	24.4	25.4	26.8	27.5	28.7
Total aquaculture	61.8	66.4	70.2	73.7	76.1	80.0
Total world fisheries and aquaculture	154.0	156.0	160.7	164.9	168.7	170.9
Utilization^b						
Human consumption	130.0	136.4	140.1	144.8	148.4	151.2
Non-food uses	24.0	19.6	20.6	20.0	20.3	19.7
Population (<i>billions</i>) ^c	7.0	7.1	7.2	7.3	7.3	7.4
Per capita apparent consumption (<i>kg</i>)	18.5	19.2	19.5	19.9	20.2	20.3

(Source: FAO 2018)

MARINE CAPTURE:

Major Producer Countries (>1mil. tones/year)

	Average 2005–2014	2015	2016
Total 25 major countries	65 451 506	66 391 560	63 939 966
Total other 170 countries	14 326 675	14 856 282	15 336 882
World total	79 778 181	81 247 842	79 276 848
Share of 25 major countries	82.0%	81.7%	80.7%

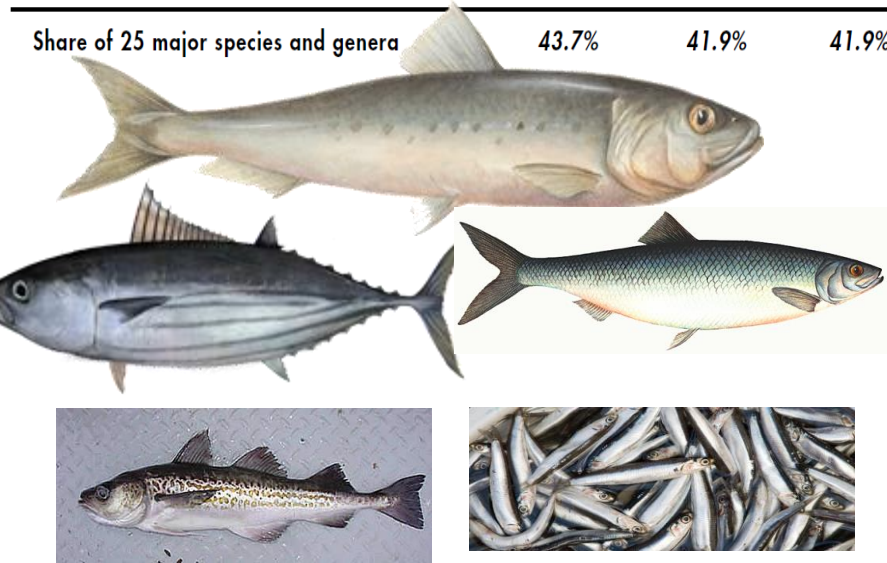
Country	Production (tonnes)		
	Average 2005–2014	2015	2016
China	13 189 273	15 314 000	15 246 234
Indonesia	5 074 932	6 216 777	6 109 783
United States of America	4 757 179	5 019 399	4 897 322
Russian Federation	3 601 031	4 172 073	4 466 503
Peru	Total 6 438 839	4 786 551	3 774 887
Excluding anchoveta	989 918	1 016 631	919 847
India	3 218 050	3 497 284	3 599 693
Japan ^a	3 992 458	3 423 099	3 167 610
Viet Nam	2 081 551	2 607 214	2 678 406
Norway	2 348 154	2 293 462	2 033 560
Philippines	2 155 951	1 948 101	1 865 213
Malaysia	1 387 577	1 486 050	1 574 443
Chile	Total 3 157 946	1 786 249	1 499 531
Excluding anchoveta	2 109 785	1 246 154	1 162 095
Morocco	1 074 063	1 349 937	1 431 518
Republic of Korea	1 746 579	1 640 669	1 377 343
Thailand	1 830 315	1 317 217	1 343 283
Mexico	1 401 294	1 315 851	1 311 089
Myanmar ^a	1 159 708	1 107 020	1 185 610
Iceland	1 281 597	1 318 916	1 067 015

(Source: FAO 2018)

MARINE CAPTURE:

Major Species (>1mil.tone/year)

	Average 2005–2014	2015	2016
Total 25 major species and genera	34 858 465	34 065 952	33 240 958
Total other 1 566 species items	44 919 716	47 181 890	46 035 890
World total	79 778 181	81 247 842	79 276 848
Share of 25 major species and genera	43.7%	41.9%	41.9%




FAO English name	Production (tonnes)		
	Average 2005–2014	2015	2016
Alaska pollock (=walleye pollock)	2 952 134	3 372 752	3 476 149
Anchoveta (=Peruvian anchovy)	6 522 544	4 310 015	3 192 476
Skipjack tuna	2 638 124	2 809 954	2 829 929
Sardinellas nei	2 281 285	2 238 903	2 289 830
Jack and horse mackerels nei	2 463 428	1 738 352	1 743 917
Atlantic herring	2 111 101	1 512 174	1 639 760
Pacific chub mackerel	1 454 794	1 484 780	1 598 950
Yellowfin tuna	1 219 326	1 356 883	1 462 540
Atlantic cod	995 853	1 303 726	1 329 450
Japanese anchovy	1 323 022	1 336 218	1 304 484
Scads nei	1 394 772	1 186 555	1 298 914
European pilchard (=sardine)	1 098 400	1 174 611	1 281 391
Largehead hairtail	1 315 337	1 269 525	1 280 214
Blue whiting (=poutassou)	1 054 918	1 414 131	1 190 282

(Source: FAO 2018)

WORLD AQUACULTURE PRODUCTION

In 2016:
Global aquaculture production was 110.2 million tonnes, with the first-sale value at \$243.5 billion. In which:

- 80.0 million tonnes of food fish (\$231.6 billion)
- 30.1 million tonnes of aquatic plants (\$11.7 billion)
- 37900 tonnes of non-food products (\$214.6 million)

 (Source: FAO 2018)

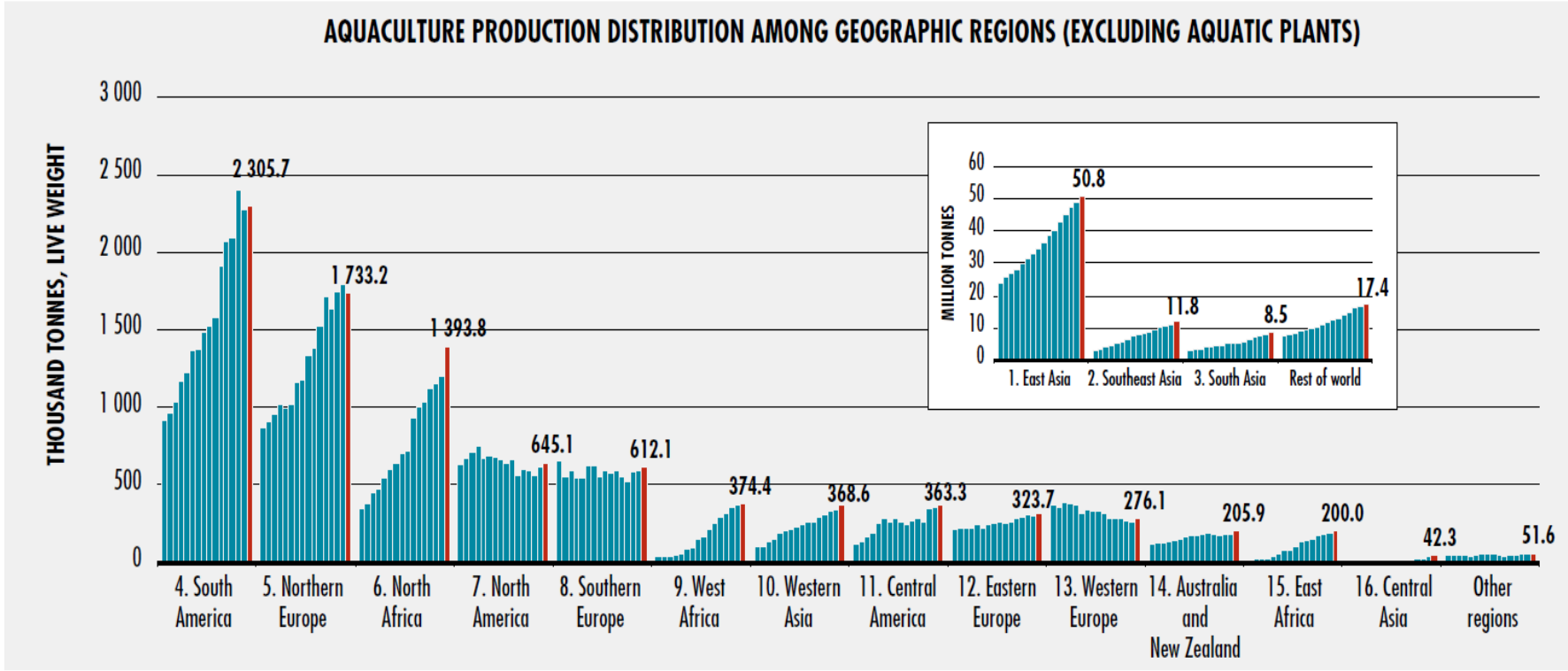
Category	1000 tonnes, live weight					
	Africa	Americas	Asia	Europe	Oceania	World
Inland aquaculture						
Finfish	1 954	1 072	43 983	502	5	47 516
Crustacea	0	68	2 965	0	0	3 033
Molluscs			286			286
Other aquatic animals		1	531			531
Subtotal	1 954	1 140	47 765	502	5	51 367
Marine and coastal aquaculture						
Finfish	17	906	3 739	1 830	82	6 575
Crustacea	5	727	4 091	0	6	4 829
Molluscs	6	574	15 550	613	112	16 853
Other aquatic animals	0		402	0	5	407
Subtotal	28	2 207	23 781	2 443	205	28 664
All aquaculture						
Finfish	1 972	1 978	47 722	2 332	87	54 091
Crustacea	5	795	7 055	0	7	7 862
Molluscs	6	574	15 835	613	112	17 139
Other aquatic animals	0	1	933	0	5	939
Total	1 982	3 348	71 546	2 945	210	80 031

MAJOR FARMED SPECIES (1000 tonnes, live weight)

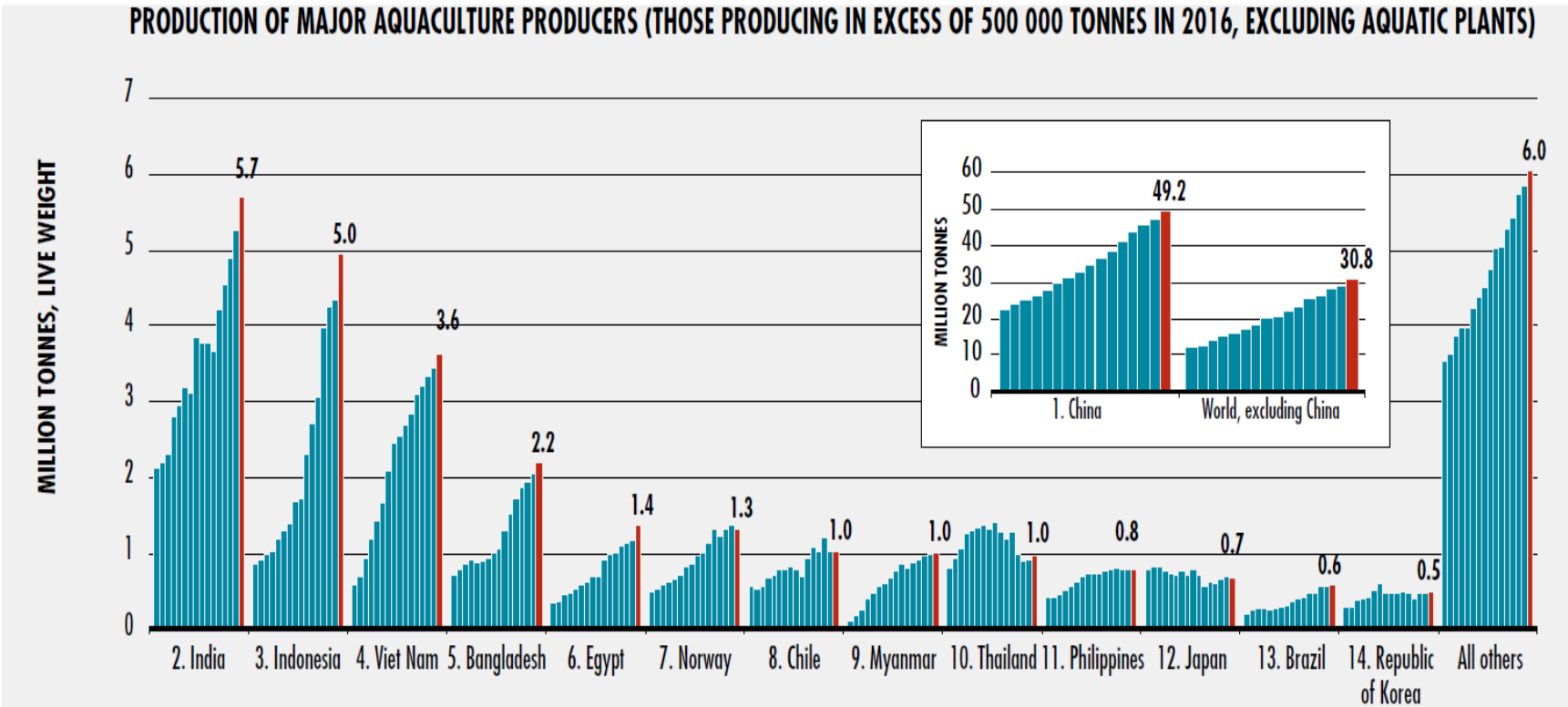


Species item	2010	2012	2014	2016	% of total, 2016
Finfish					
Grass carp, <i>Ctenopharyngodon idellus</i>	4 362	5 018	5 539	6 068	11
Silver carp, <i>Hypophthalmichthys molitrix</i>	4 100	4 193	4 968	5 301	10
Common carp, <i>Cyprinus carpio</i>	3 421	3 753	4 161	4 557	8
Nile tilapia, <i>Oreochromis niloticus</i>	2 537	3 260	3 677	4 200	8
Bighead carp, <i>Hypophthalmichthys nobilis</i>	2 587	2 901	3 255	3 527	7
<i>Carassius</i> spp.	2 216	2 451	2 769	3 006	6
Catla, <i>Catla catla</i>	2 977	2 761	2 770	2 961	6
Crustaceans					
Whiteleg shrimp, <i>Penaeus vannamei</i>	2 688	3 238	3 697	4 156	53
Molluscs					
Cupped oysters nei, <i>Crassostrea</i> spp.	3 678	3 972	4 374	4 864	28
Japanese carpet shell, <i>Ruditapes philippinarum</i>	3 605	3 775	4 014	4 229	25
Scallops nei, <i>Pectinidae</i>	1 408	1 420	1 650	1 861	11

WORLD AQUACULTURE PRODUCTION: Major Producer Regions, 2001-2016

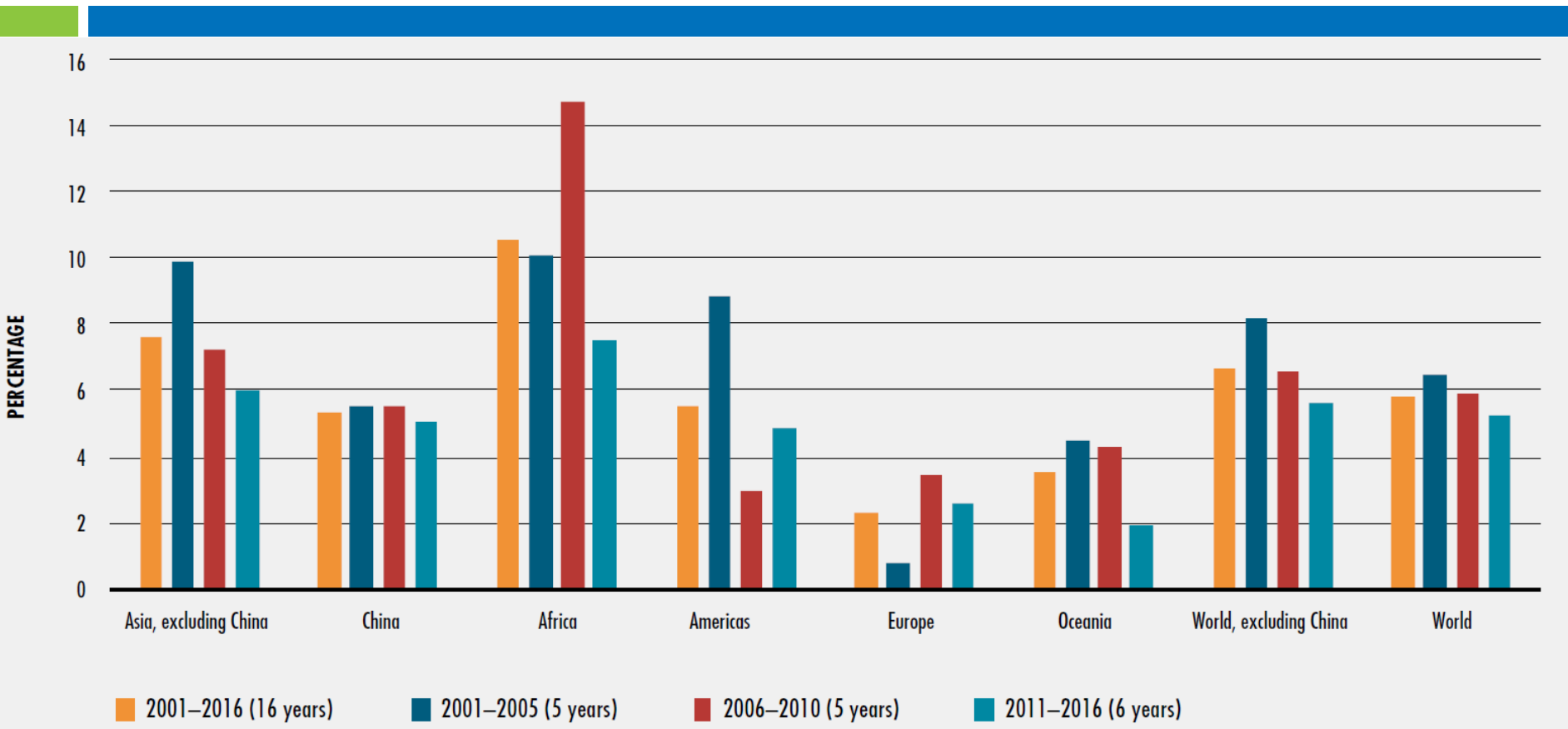


WORLD AQUACULTURE PRODUCTION: Major Producer Countries, 2001-2016



(Source: FAO 2018)

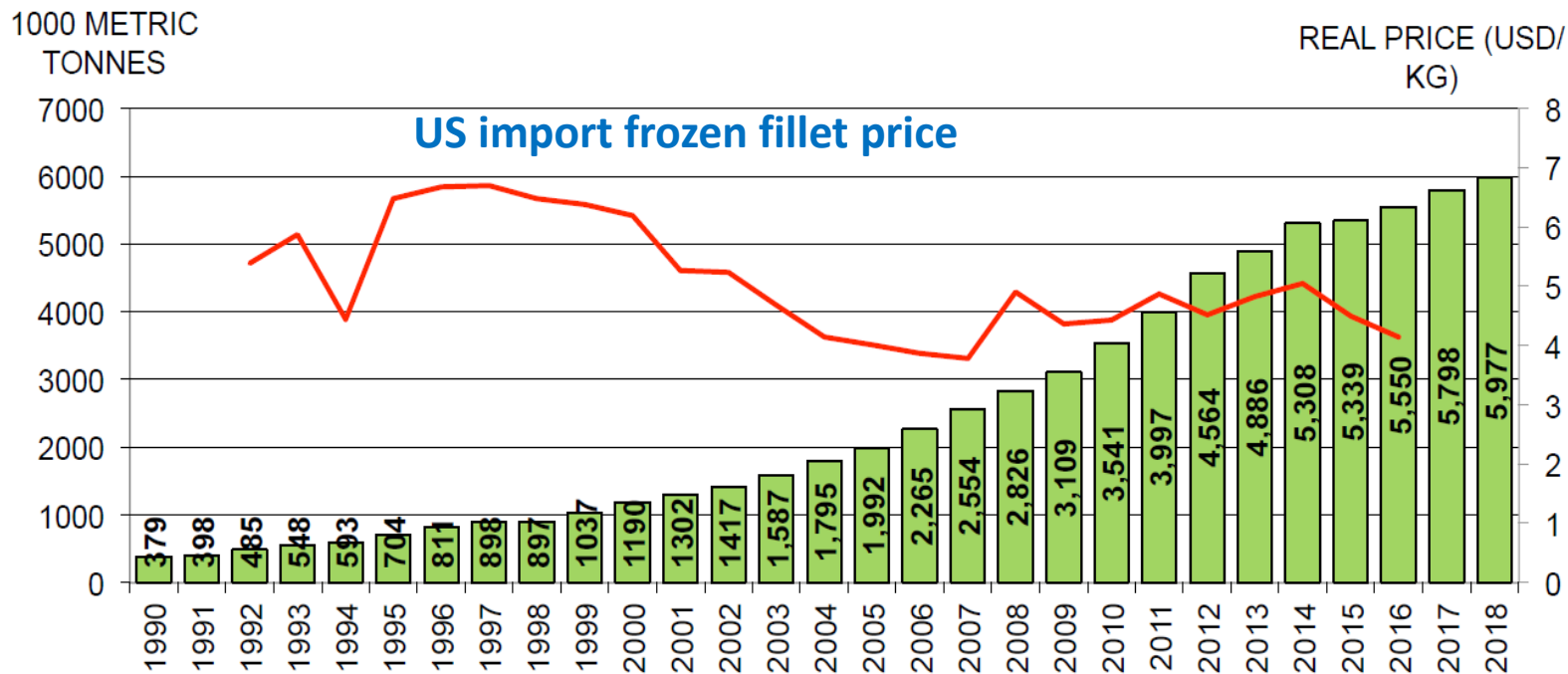
AVERAGE ANNUAL GROWTH RATE OF AQUACULTURE PRODUCTION BY VOLUME (excluding aquatic plants)



IMPORTANT AQUACULTURE SPECIES

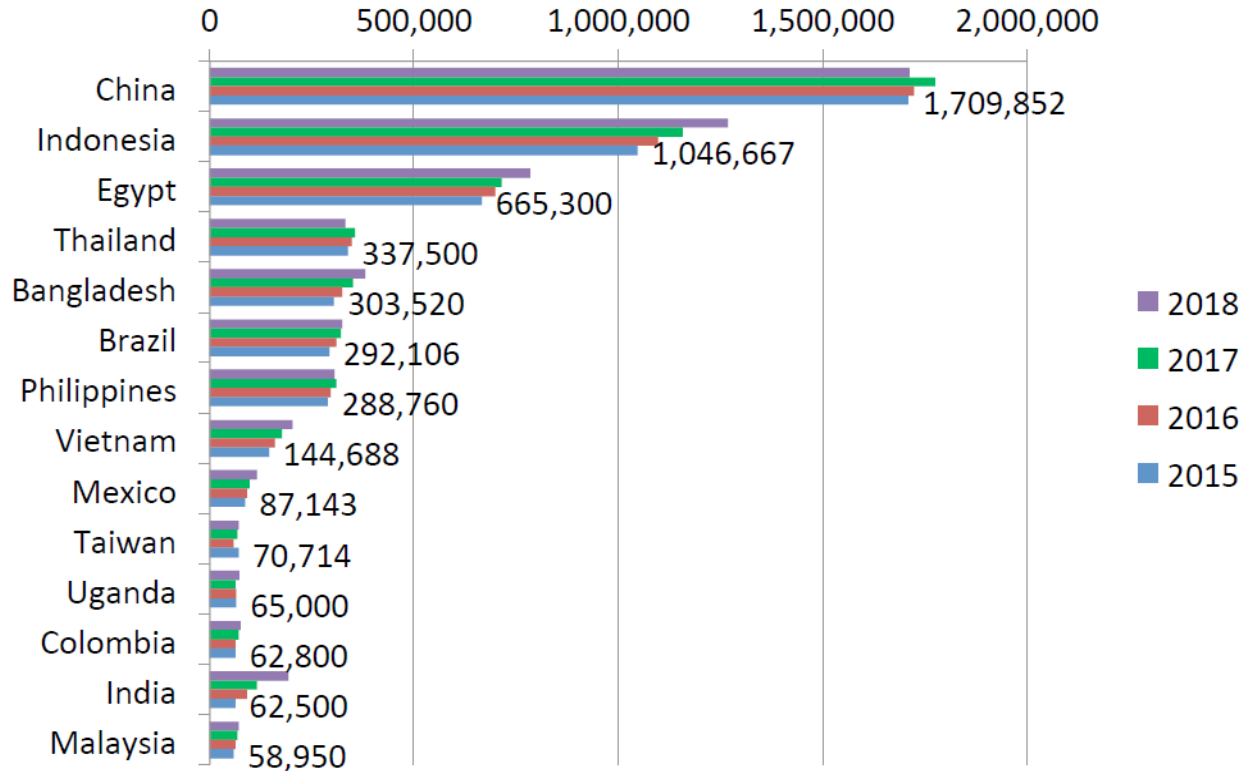
- **Freshwater species: Tilapia, catfish & pangasius, carp, trout.**
- **Marine species: Salmon, seabass & seabream, cobia**

Global Tilapia Aquaculture Production



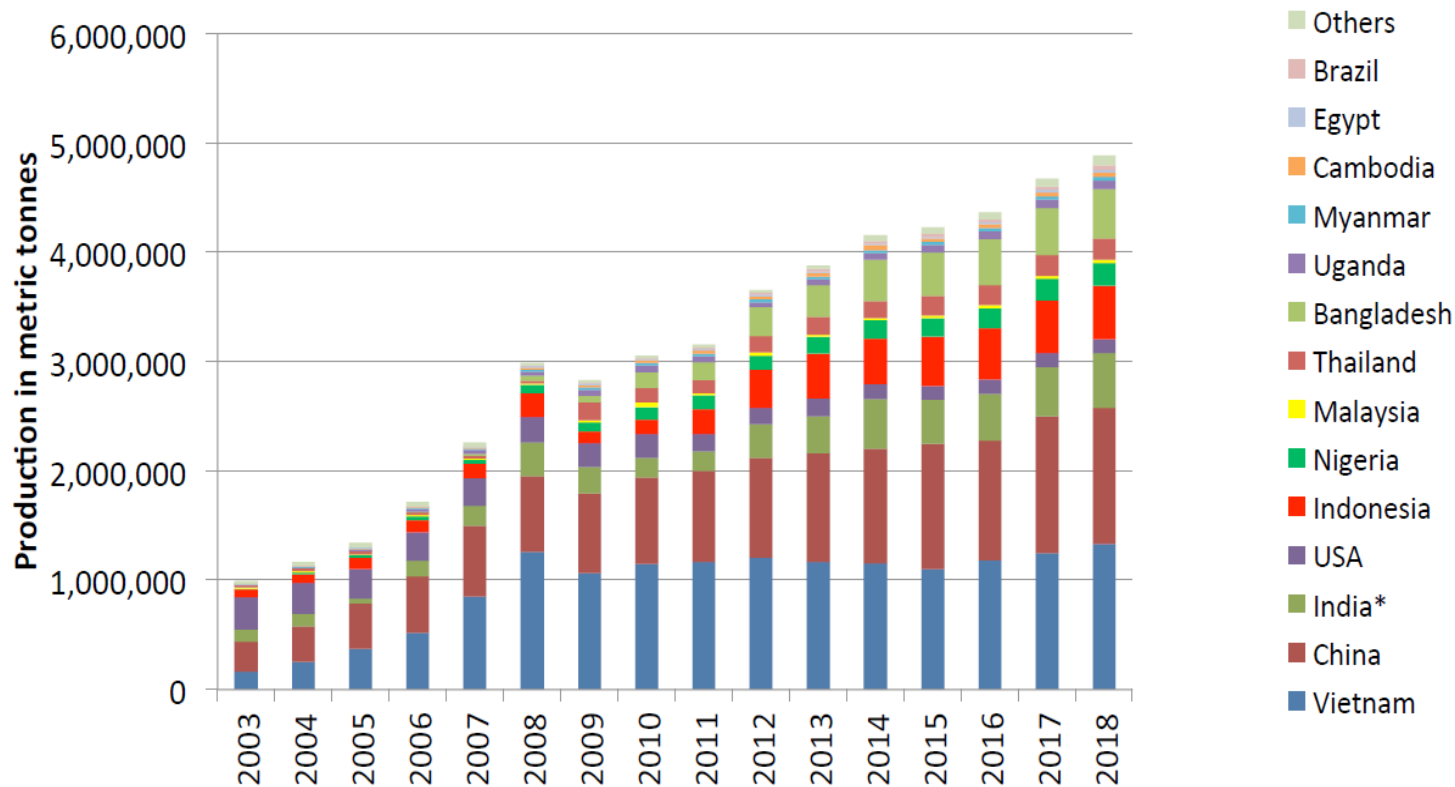
Source: Ragnar et al, 2018

Tilapia Country Producers



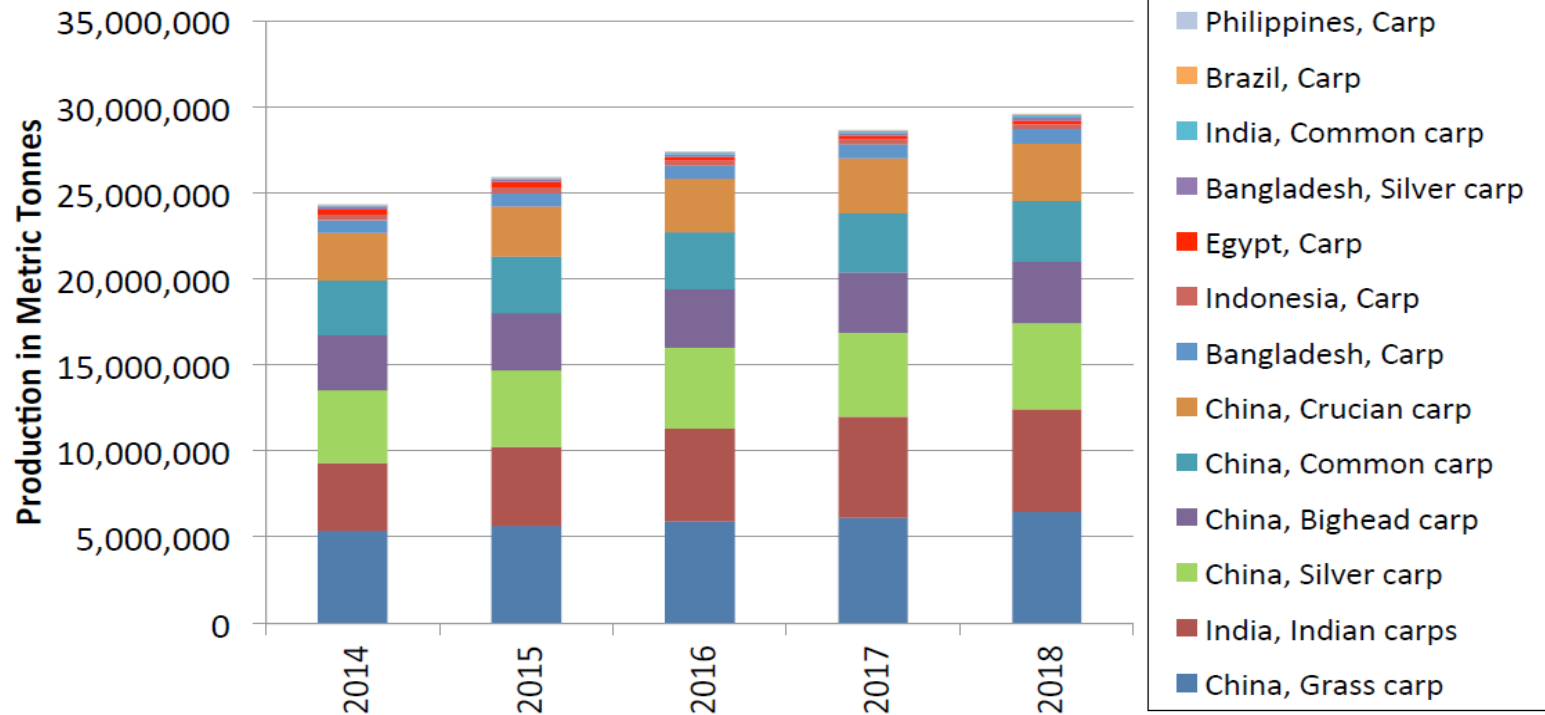
Source: Ragnar et al, 2018

Global Catfish & Pangasius Aquaculture Production

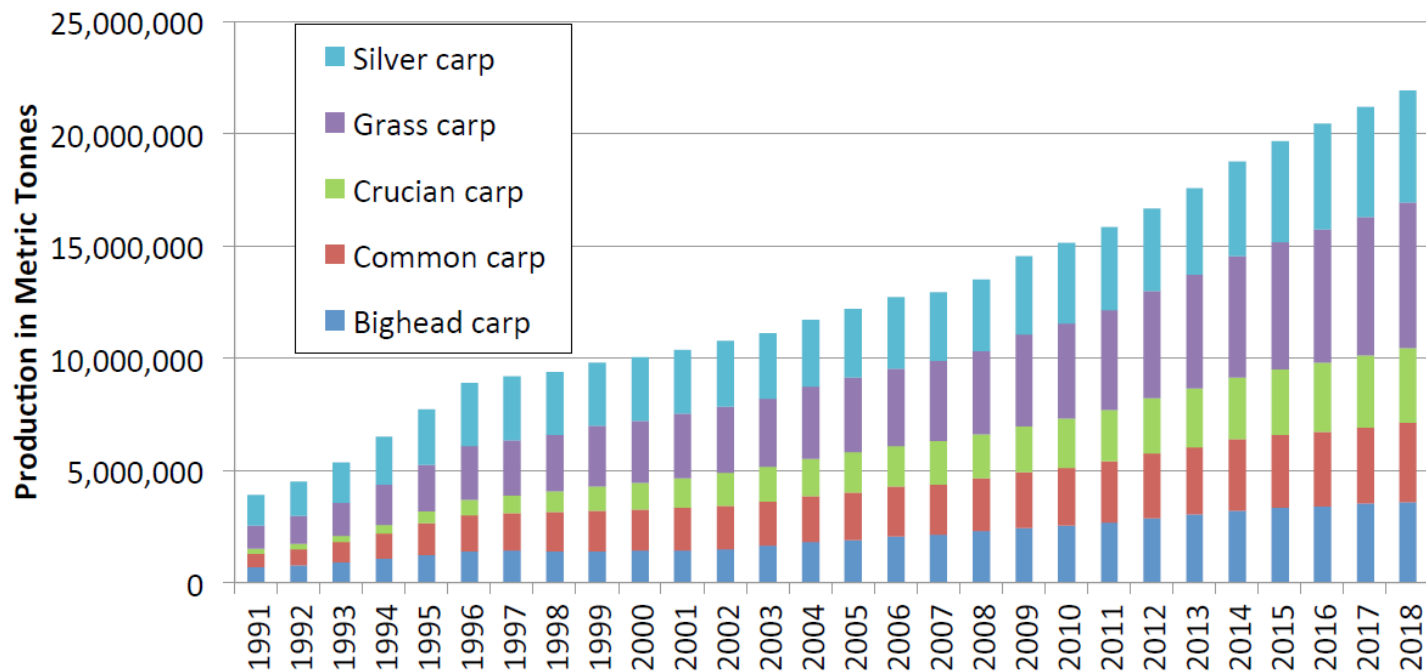


Source: Ragnar et al, 2018

Major Carp Aquaculture Production

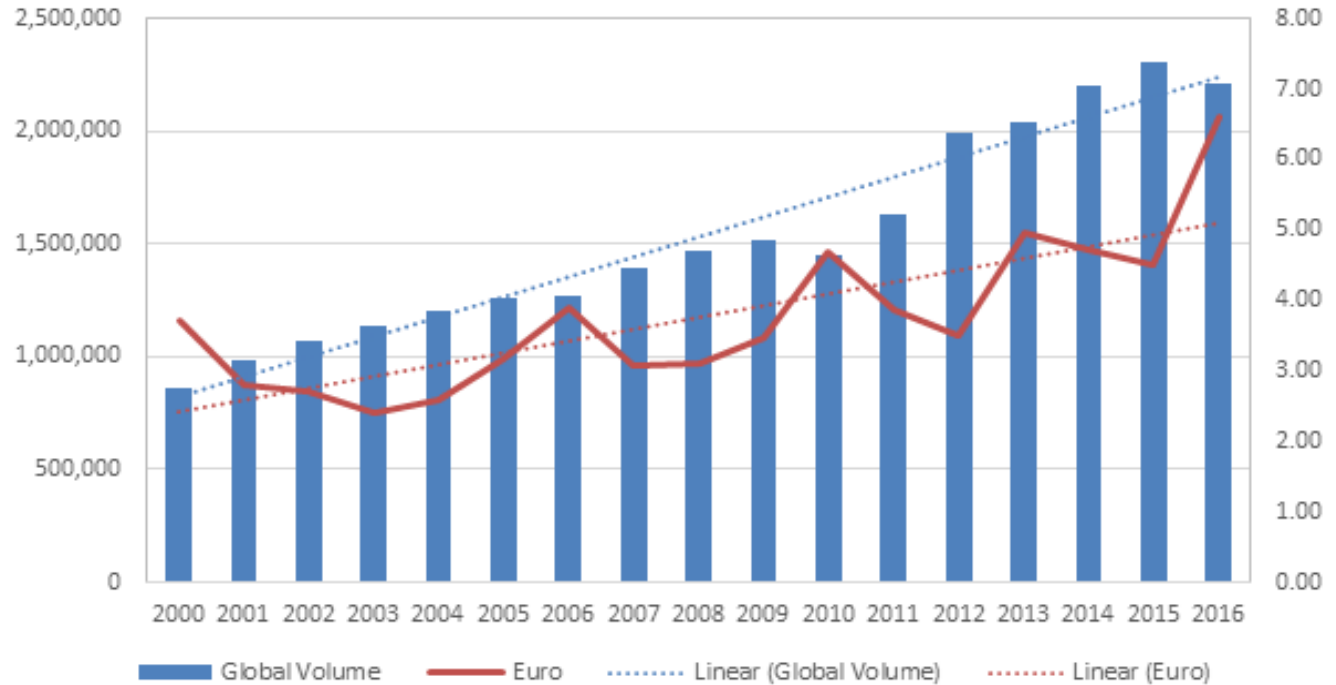


Carp Aquaculture Species in China



Global Farmed Salmon

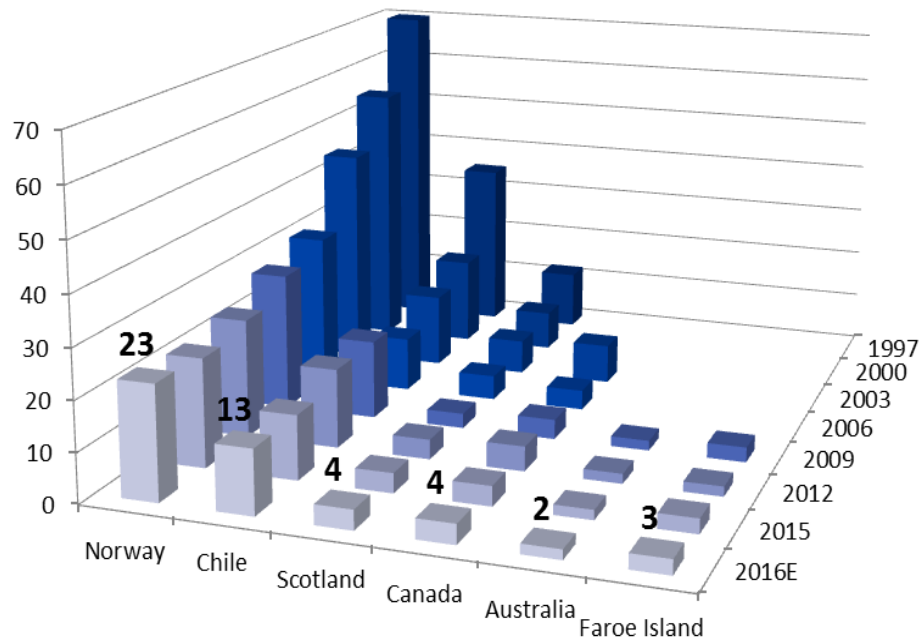
Global production of farmed salmon in tones (left) & price (€/kg) (right).



(Source: FAO 2018)

Market consolidation in salmon farming

The salmon sector has undergone substantial consolidation since 2000. Number of firms producing 80% of farmed salmon in Norway, Chile, Scotland, Canada, Australia and the Faroe Islands 1997-2016.

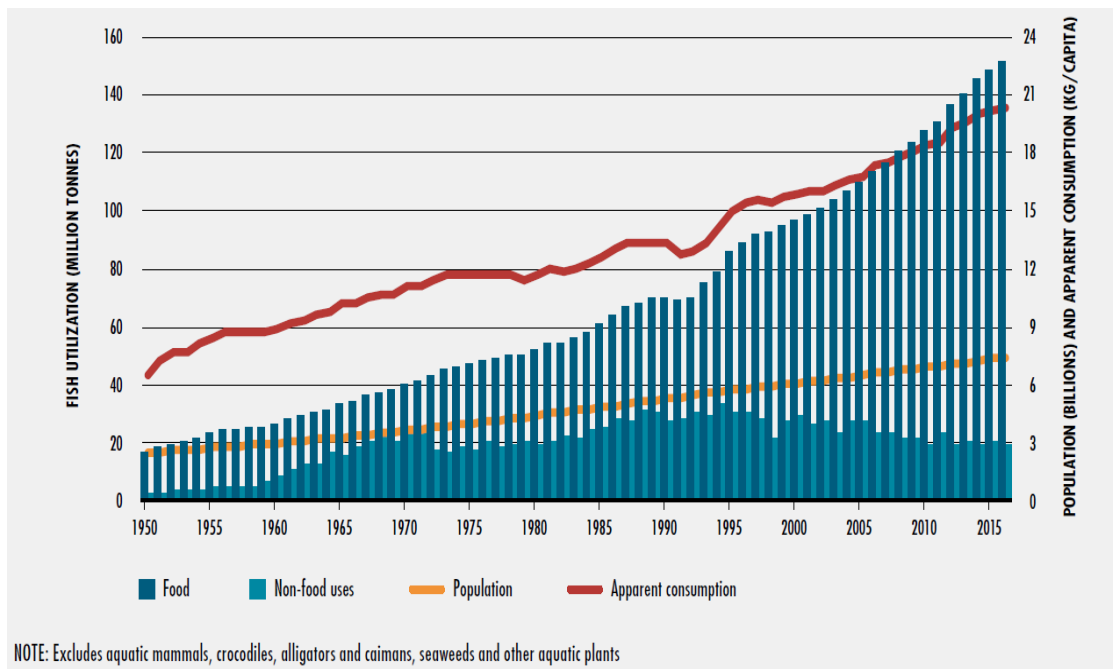


(Source: Primefish, D2.2, 2017)

WORLD FISH CONSUMPTION

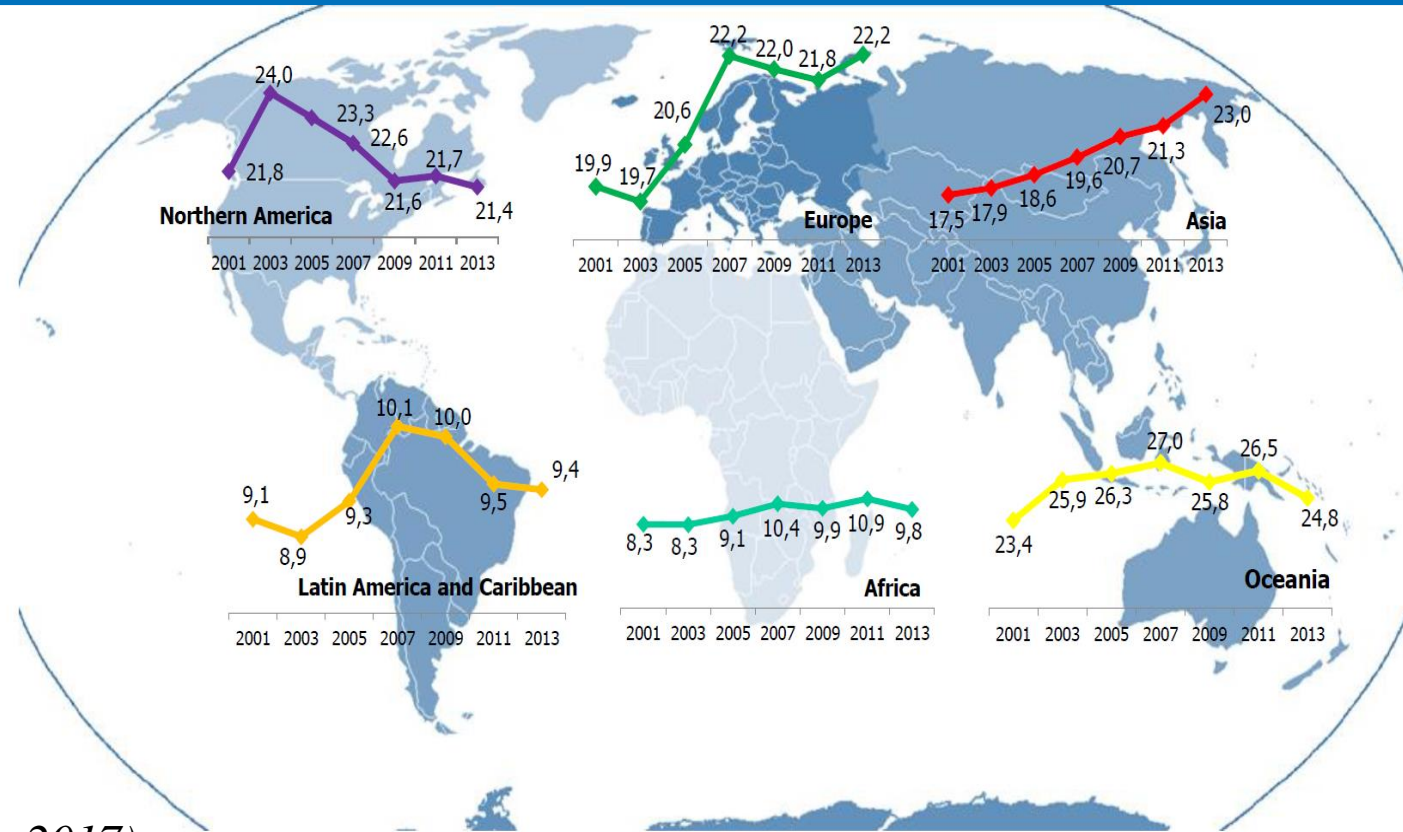
Between 1961 and 2016:

- Global food fish consumption increased at 3.2%/year:
- > outpaced population growth (1.6%/year);
- > exceeded meat from all animals combined (2.8%/year).



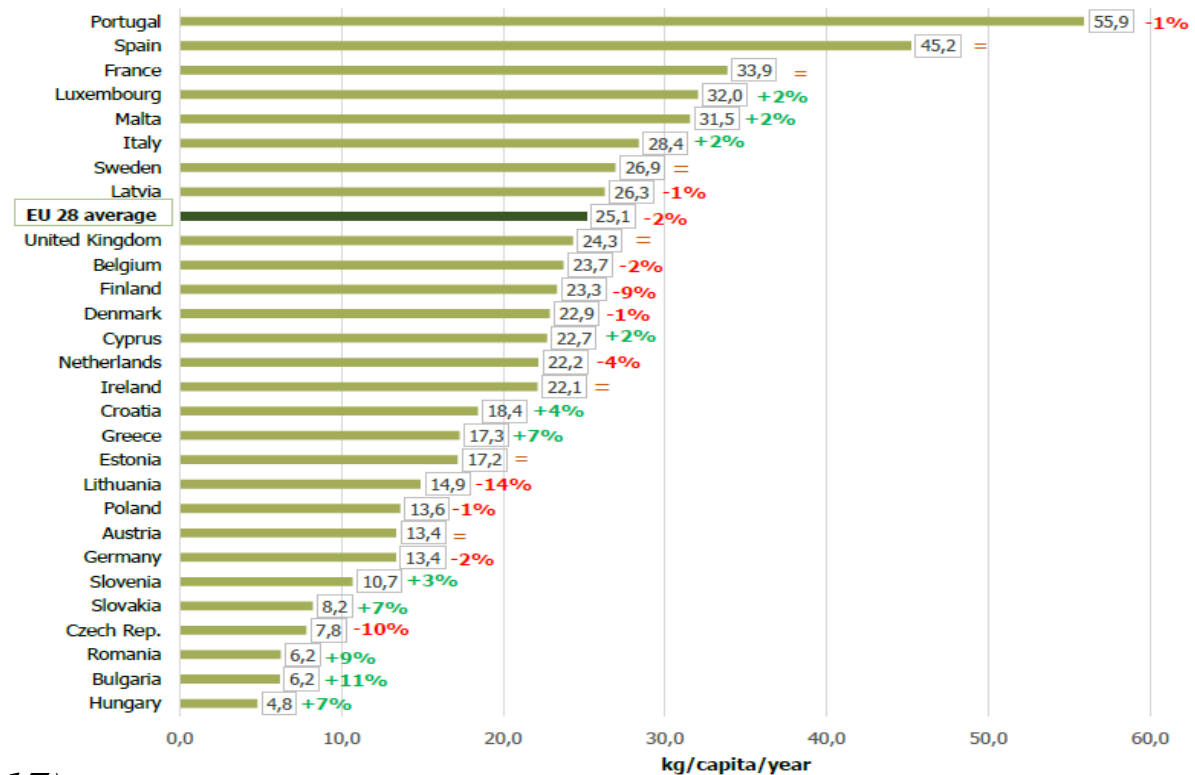
Fish consumption grew from 9.0 kg in 1961 to 20.2 kg in 2015, at rate of 1.5%/year.
Consumption expansion driven by increased production & other factors, e.g. reduced wastage.

World Consumption per Capita (kg/person/year)



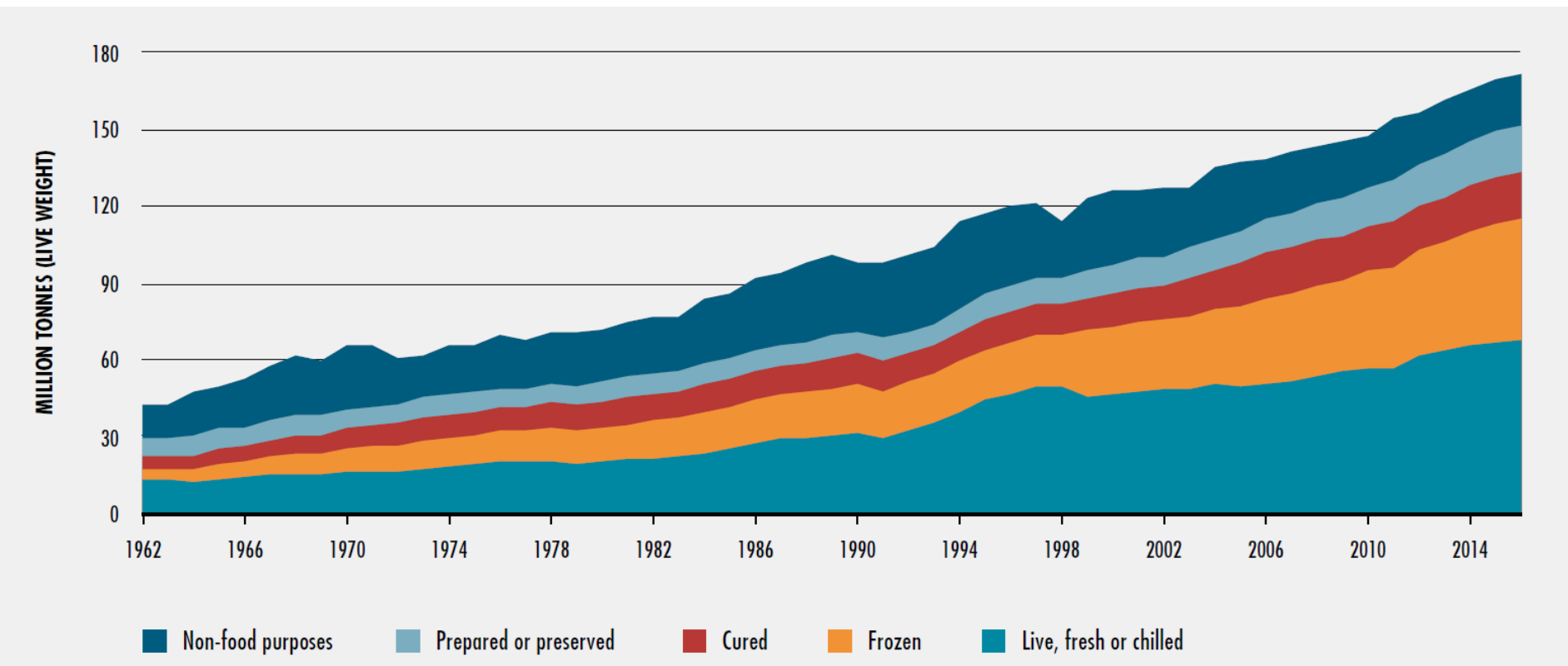
Consumption of European Consumers by Countries, 2015

Per capita consumption of fish and seafood (kg capita/year) per Member State, 2015 and % variation 2015/2014 (*Live weight equivalent*)



(Source: EUMOFA, 2017)

UTILIZATION OF WORLD FISHERIES PRODUCTION, 1962–2016



GLOBAL SEAFOOD TRADE

Main trade flows of fishery and aquaculture products in the world
(2016)

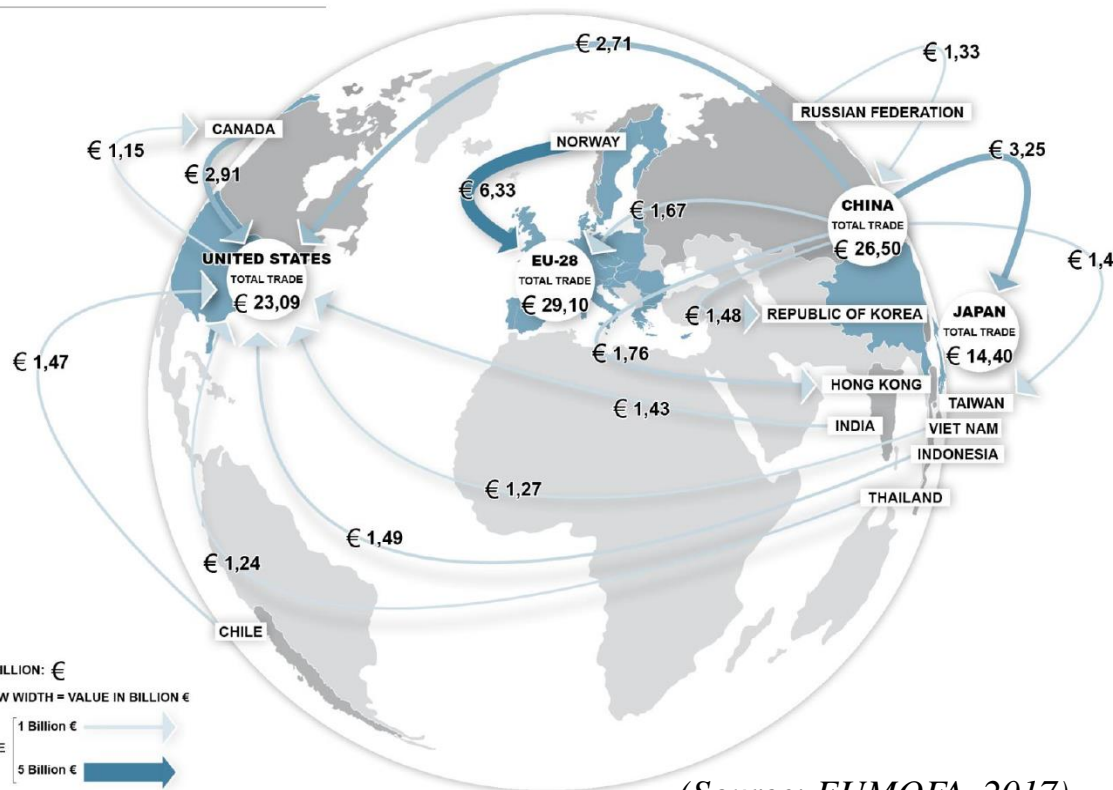
Source: EUROSTAT (for EU trade flows)
and GTA (for bilateral trade flows between extra-EU countries)

Seafood products are some of the most traded food items;

In 2016

- about 35% global fish production entered international trade;
- about 60 million tonnes (live weight equivalent) of total fish and fish products exported, increase by 24% since 1976;
- trade value about \$143bil, increased from \$8bil in 1976, representing 4% per year.

Major markets: EU, USA and Japan



(Source: EUMOFA, 2017)

TOP TEN EXPORTERS

Country	2006		2016		APR ^a (%)
	Value (million USD)	Share (%)	Value (million USD)	Share (%)	
Exporters					
China	8 968	10.4	20 131	14.1	8.4
Norway	5 503	6.4	10 770	7.6	6.9
Viet Nam	3 372	3.9	7 320	5.1	8.1
Thailand	5 267	6.1	5 893	4.1	1.1
United States of America	4 143	4.8	5 812	4.1	3.4
India	1 763	2.0	5 546	3.9	12.1
Chile	3 557	4.1	5 143	3.6	3.8
Canada	3 660	4.2	5 004	3.5	3.2
Denmark	3 987	4.6	4 696	3.3	1.7
Sweden	1 551	1.8	4 418	3.1	11.0
Top ten subtotal	41 771	48.4	74 734	52.4	6.0
Rest of world total	44 523	51.6	67 796	47.6	4.3
World total	86 293	100.0	142 530	100.0	5.1

TOP TEN IMPORTERS

Country	2006		2016		APR ^a (%)
	Value (million USD)	Share (%)	Value (million USD)	Share (%)	
United States of America	14 058	15.5	20 547	15.1	3.9
Japan	13 971	15.4	13 878	10.2	-0.1
China	4 126	4.5	8 783	6.5	7.9
Spain	6 359	7.0	7 108	5.2	1.1
France	5 069	5.6	6 177	4.6	2.0
Germany	4 717	5.2	6 153	4.5	2.7
Italy	3 739	4.1	5 601	4.1	4.1
Sweden	2 028	2.2	5 187	3.8	9.8
Republic of Korea	2 753	3.0	4 604	3.4	5.3
United Kingdom	3 714	4.1	4 210	3.1	1.3
Top ten subtotal	60 533	66.6	82 250	60.7	3.1
Rest of world total	30 338	33.4	52 787	39.3	5.7
World total	90 871	100.0	135 037	100.0	4.0

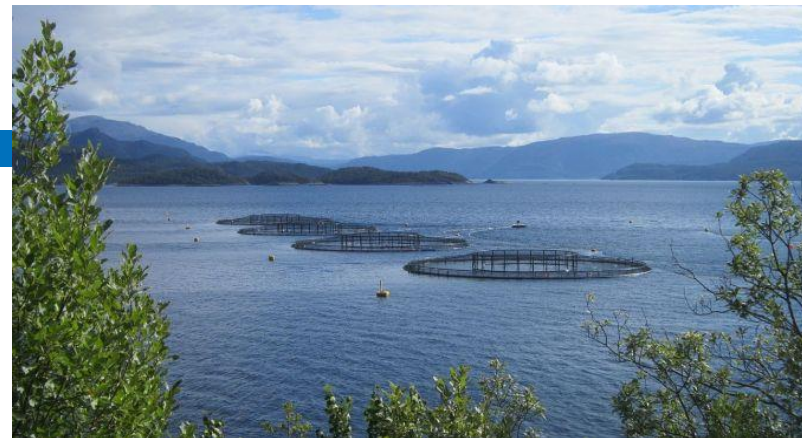
SHARE OF TRADE OF MAIN SPECIES GROUP, 2016

Species group	Share in value	Share in quantity
Fish	65.4	79.8
Salmons, trouts, smelts	18.1	7.4
Tunas, bonitos, billfishes	8.6	8.6
Cods, hakes, haddocks	9.6	14.0
Other pelagic fish	6.1	11.7
Freshwater fish	3.2	4.5
Flounders, halibuts, soles	2.1	1.6
Other fish	17.8	32.0
Crustaceans	23.0	8.3
Shrimps, prawns	16.1	6.2
Other crustaceans	6.9	2.1
Molluscs	11.0	11.1
Squids, cuttlefishes, octopuses	6.4	3.8
Bivalves	3.2	6.0
Other molluscs	1.4	1.3
Other aquatic invertebrates/animals	0.6	0.8
Total	100.0	100.0

SUMMARY

- 2016 production at 171 million. tonnes, 47% by aquaculture; first sale value at \$362 billion (\$232 billion from aquaculture).
- Trade value at \$143 billion in 2016, increasing 4%/year;
- Consumption grew up to 20.2 kg in 2015, at rate of 1.5%/year.

**Is seafood industry highly potential?
Are you ready for a start-up?**



Seafood data sources

- Food and Agriculture Organization of UN (FAO):
<http://www.fao.org/fishery/statistics/collections/en>
-[FAO.org](http://www.fao.org) => statistics=> Fisheries and aquaculture
- Trade Map: International Trade Center (UN & WTO):
<https://www.trademap.org/Index.aspx>
- Eurostat of European Commission:
<http://ec.europa.eu/eurostat>
- Overview Report on world fisheries and aquaculture status (FAO, 2018)

Thank you for your attention!

Q&A

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