

European seabass (*Dicentrarchus labrax*) statistics summary



Summary

European seabass is the 31st most reared fish in worldwide aquaculture [1]. The main producer is Turkey accounting 52.21% of worldwide production followed from far away by Greece with 15.67% of all production. All countries have increased production and worldwide production has increased lead by Turkey, while Greece has kept more stable. Still, main worldwide exporter is Turkey followed by Greece, although Turkey exportations value is smaller than Greece's. Most production worldwide is done in sea cages, but production in Egypt is done all in land-based ponds. Difference between size prices per kg have been dwindling over time, and recently, partially caused by the COVID pandemic the difference between size prices is almost not existent. European seabass experience a mortality of 20% over the full grow-out stage. Most frequent diseases are bacterial, which causes 74% of diseases.

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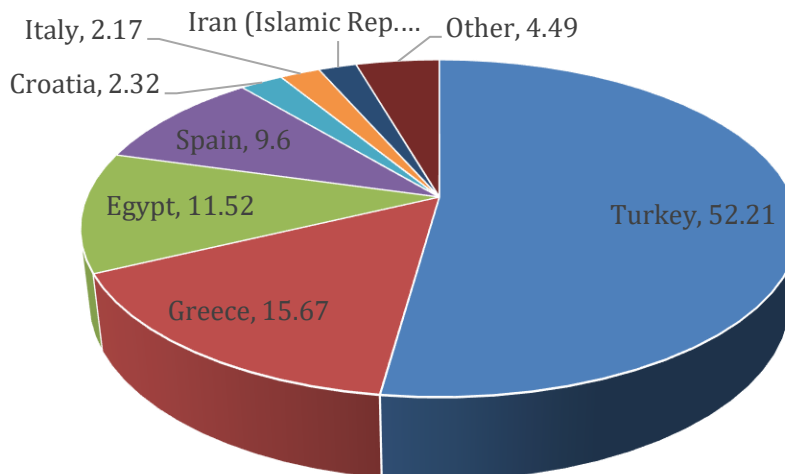
Production

World

- Total European Seabass world production in 2019 was an estimation of 236,215 Tn [1].
- Turkey is the biggest producer accounting 52.21% of world European Seabass production. Followed by Greece accounting for 15.67% of production, and Egypt with 11.52% of production [1] (Table 1).

Table 1 European Seabass production 2019. Top 10 global production countries [1]

Country	Production (Tonnes)	Share of global production (%)	Estimated ¹ production by numbers (millions)
Turkey	137,419	52.21	55 - 550
Greece	41,237	15.67	16 - 165
Egypt	30,313	11.52	12 - 121
Spain	25,260	9.6	10 - 101
Croatia	6,100	2.32	2 - 24
Italy	5,720	2.17	2 - 23
Iran (Islamic Rep. of)	5,400	2.05	2 - 22
Tunisia	3,331	1.27	1 - 13
Cyprus	2,836	1.08	1 - 11
France	2,461	0.93	1 - 10



- Turkey ■ Greece ■ Egypt ■ Spain ■ Croatia ■ Italy ■ Iran (Islamic Rep. of) ■ Other

Figure 1. Share of global European seabass production 2019 (%). Other includes countries among 10 top countries with less than 2% share.

¹ Fish numbers obtained using a range of estimated mean weight: 0.250–2.5 kg [13]

- Iran is the 7th worldwide producer (Table 1). 2018 was the first time there is production data available for Iran and they account for 2% of worldwide production [1], on 2019 it accounts for 2.05% (Table 1, Figure 1).
- Global production has increased constantly from close to 71,000 Tn in 2000 to 236,000 Tn in 2019. Only between 2000 and 2002 the production decreased [1]. The increase in production has been driven mainly by Turkey (Figure 2).

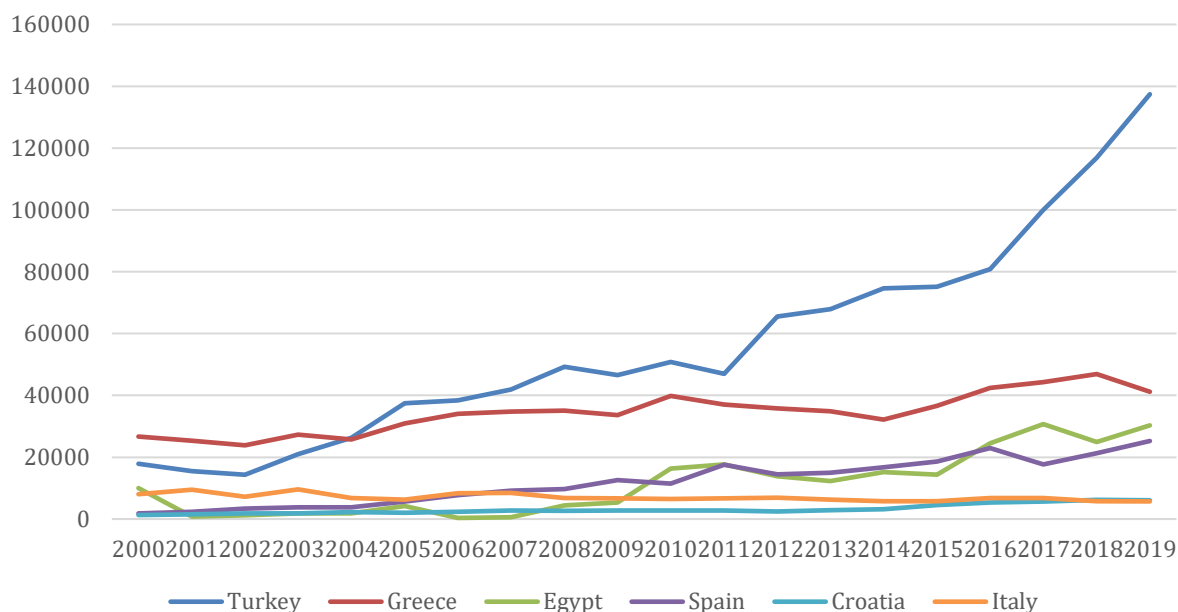


Figure 2. Production of European seabass (tonnes) 2000-2019 of the six top producer countries in 2019.

EU

- In 2019, EU27 produced 84,350 Tn which is between 34 and 338 million of fish¹. It is a 32% of the worldwide production [1].
- EU27 2019 production comes mainly from six countries: Greece (48.84%), Spain (29.9%), Croatia (7.22%), Italy (6.77%), Cyprus (3.36%) and France (2.91%). Malta, Portugal and Slovenia have less than 1% production of the EU production [1].

Table 2. Change of production from 2000 to 2018 in the most 6 most productive EU countries [1].

Country	% of change
Greece	76.44
Spain	1,057.80
Croatia	378.47
Italy	-29.16
Cyprus	699
France	-53.64

- From 2000 production has increased over all the EU in a big % due to increase of productions in countries like Spain, Croatia, or Cyprus, but also in Greece. Still, Italy and France had big decreases in production over this time (Table 2).
- Spanish production will decrease a 40% per annum due to the Storm Gloria causing big escape events that occurred at early 2020.

Trade

World

- Largest exporter by volume worldwide is Turkey with 42,590 Tn followed closely by Greece with 40,677 Tn. When ranking countries by exports value positions are exchanged and Greece lead exports and Turkey goes second. (Table 3) [1].
- Italy is the largest importer in the world by volume with 32,147 Tn followed by Spain with 11,257 Tn. When imports are considered by value Italy keeps the first place but the second place is taken by USA (Table 3) [1]

Table 3. Worldwide European seabass exports and imports on 2018, by volume and by value.

Exports					
Country	Quantity(Tonnes)	Share(%)	Country	Value (USD x 1000)	Share (%)
World	122,762		World	713,006	
Turkey	42,590	34.69	Greece	239,131	33.54
Greece	40,677	33.13	Turkey	194,507	27.28
Netherlands	9,919	8.08	Netherlands	73,749	10.34
Spain	6,606	5.38	Spain	62,642	8.79
Croatia	4,380	3.57	Croatia	31,642	4.44
Italy	3,491	2.84	Italy	20,853	2.92
Malaysia	2,698	2.20	France	17,522	2.46
Taiwan	2,500	2.04	Cyprus	11,826	1.66
France	1,688	1.38	Taiwan	9,381	1.32
Germany	1,622	1.32	Germany	8,785	1.23
Imports					
Country	Quantity(Tonnes)	Share(%)	Country	Value (USD x 1000)	Share(%)
World	120,799		World	739,466	
Italy	32,147	26.61	Italy	198,561	26.85
Spain	11,257	9.32	USA	77,183	10.44
Netherlands	8,728	7.23	Spain	59,614	8.06
USA	8,209	6.80	Netherlands	52,342	7.08
France	7,523	6.23	France	50,409	6.82
Portugal	7,319	6.06	Portugal	48,531	6.56
UK	7,261	6.01	UK	41,060	5.55
Afghanistan	4,345	3.60	Germany	23,554	3.19
Greece	4,162	3.45	Russia	20,239	2.74
Russia	4,056	3.36	Greece	18,583	2.51

EU

- In 2018 EU 27 exported 71,059 Tn which accounts for almost 58% of world exports , from which Greece is the main exporter with 40,677 Tn followed by Netherlands with 9,919 Tn (Table 3
- Table 3) [1].
- Exports account for a value of US\$ 475 million which account for a bigger share of exports than when looking at volume with 67%. Greece exports have a value of US\$ 239 million and Netherlands US\$ 73 million (Table 3) [1].
- EU27 imports 79,710 TN (66% of worldwide imports) with a value of US\$ 492 million. Italy leads imports with 32,147 Tn followed by Spain with 11,257 Tn (Table 3) [1].
- Notice how Netherlands is the third importer and second exporter within EU27, with also very high position worldwide. They export as much as they import, and they do not have production, indicating a reexportation of the seabass.
- By volume:
 - From the top 10 global exporters 7 are from the EU 27.
 - From the top 10 global importers 6 are from the EU 27.

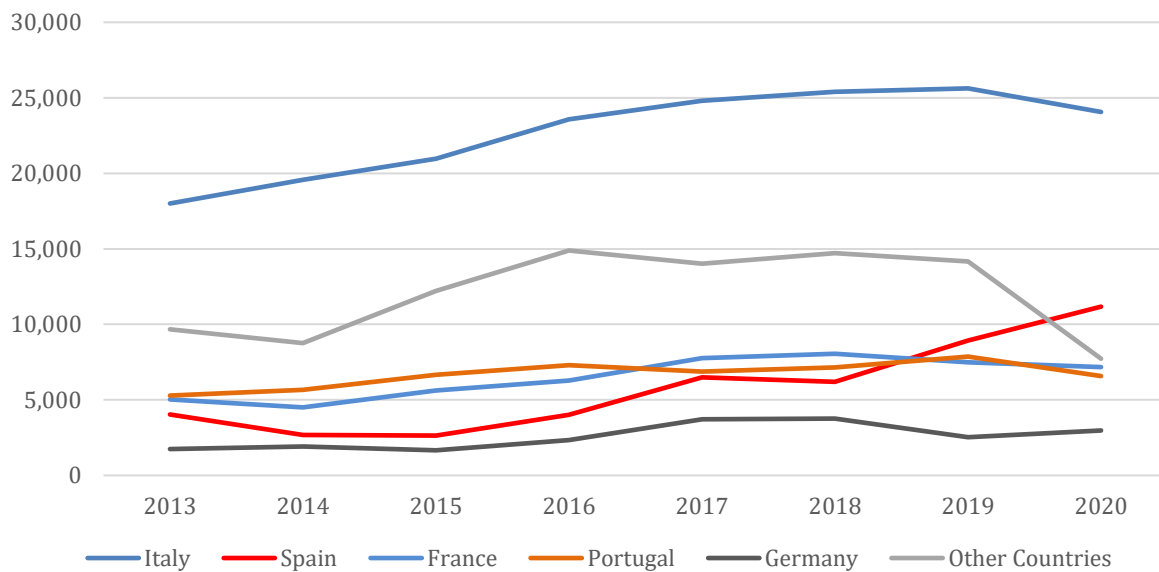


Figure 3. Intra EU-27 imports by volume (Tn). 5 main destination countries and Other countries 2013-2020 [2].

- Main destination for EU27 European seabass is Italy, with a 40% share of all intra-EU27 imports [2], which represents 24,000 Tn (Figure 3).
- Spanish imports have increased over time reaching 18.72% of imports, corresponding to 11,200 Tn [2] (Figure 3).
- Spain has doubled their EU27 imports since 2013 and other countries have reduced their share of the intra-imports.

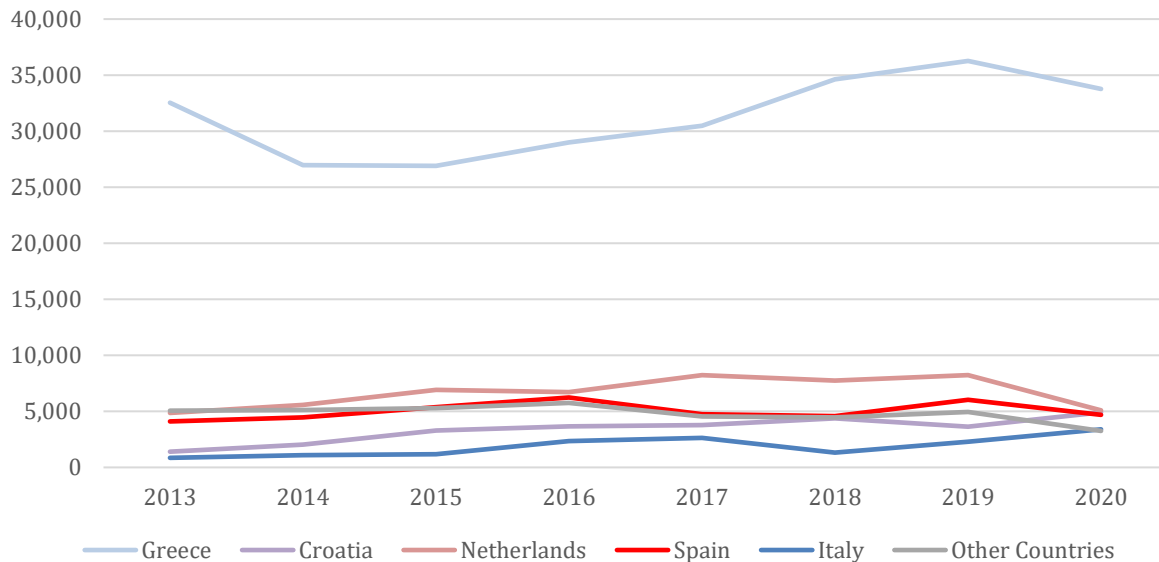


Figure 4. Main 5 countries and Other countries for origin of European seabass intra EU-27 imports by volume 2013-2020 [2].

- On 2020, Greece dominates exports to other EU-27 countries with 61% of the imports. Followed by Netherlands with 9.25 %.
- Netherland's 5,096 Tn of European seabass exports to other EU-27 countries is of external EU origin [1], [2] (Figure 4).
- Greece dominance has dwindled over the years but recovered a bit for 2020 thanks to reduction of share of smaller exporters over the years and Spain and Netherlands share decrease.

UK

- UK imports 7,261 Tn of Seabass which accounts for a value of US\$ 41million [1].
- UK exports only for 275 Tn for a value of US\$ 3 million.

Price vs Cost

Cost

- It is difficult to find an updated production cost and the cost structure for European seabass, and we must rely in published papers and reports that are not always update or accurate, due to including different kind of costs.
- Production cost varies between countries being production cost in Turkey smaller than in other countries.
 - Turkish production cost reported in 2004 varies between the Aegean Sea (1.77 €/kg) and the Black Sea (3.62 €/kg) [3]. The cost for Turkish Black Sea European seabass at 2009 is reported to be the same [4].
 - In Italy 2014, the cost varies between 4.3 €/kg and 4.29 €/kg corresponding to inshore cages and offshore cages [5].
 - The University of Wageningen reports a production cost for France, Italy and Spain in 2016 of 6.41 €/kg for conventional production and 8.61 €/kg for organic production [6]. Contrary to this, a case study from EUMOFA in 2019 puts the ex-farm price for Spanish European seabass at 5.67 €/kg, which indicates a smaller production cost or that they are selling at smaller price than production cost [7].
- Feed is the main cost of production with an average of 40% (Figure 5). The cost of feed increases constantly. Since it is such a big part of the cost it narrows the profit of producing European seabass.

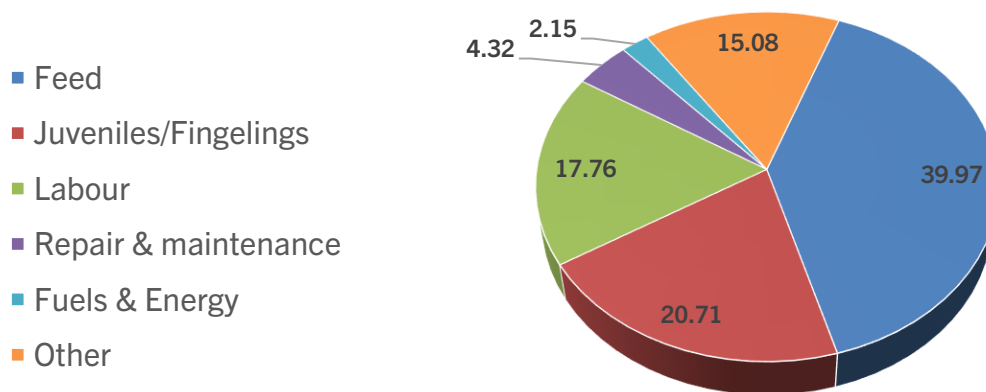


Figure 5. Average cost distribution, obtained from averaging % reported from different sources: [3]–[6].

- Feed is the biggest cost for all countries and production systems but varies between 32% for non-organic production France, Italy and Spain, and 47% for Turkey (Table 4).
- Generally, juveniles are a big portion of the cost, but it seems that Turkey has a cheaper supply than other countries (Table 4) and is a less important than other factors. The opposite occurs with labour, and it has more weight in the cost structure for Turkey (Table 4).
- Cost structure analysis is affected by how the cost is reported. In the class “Other” there is a variety of concepts: marketing, packaging, interests, financial costs, medicine and additives, depreciation... that are not reported by all, or even defined [3]–[6].

Table 4. Production cost structure (% of the total cost) for European seabass from different locations, systems, and years. Numbers in italics were estimated due to the source not reporting all the percentages to complete 100%. Cost for France, Italy & Spain are seabream and seabass combined.

	Italy 2014[5]		France, Italy & Spain 2016[6]		Turkey Black Sea		Average
	Inshore	Offshore	No organic	Organic	2009[4]	2019[3]	
Feed	38.90	36.91	32.40	36.15	47.73	47.73	39.97
Juveniles	31.20	31.20	18.79	22.64	10.43	10.00	20.71
Labour	14.10	16.50	16.42	13.96	22.59	23.00	17.76
Repair & Maintenance	4.10	3.90	7.40	7.58	1.43	1.50	4.32
Fuels & Energy	1.90	3.30	2.81	2.09	1.33	1.50	2.15
Other	9.80	8.19	22.19	17.58	16.47	16.27	15.08

Price

- The price for European seabass changes depending on the size of the fish. There are three sizes:
 - Small: 300 – 400 g.
 - Medium: 400 – 600 g.
 - Big: more than 600 g.
- Prices of the three different sizes were clearly differentiated but from mid-2017 prices get closer between sizes and many times overlap. From late 2019 to the end of 2020 prices of sizes are completely overlapped (Figure 6) [8].
- Prices for the big size are much more variable than the price for the other two (Figure 6).

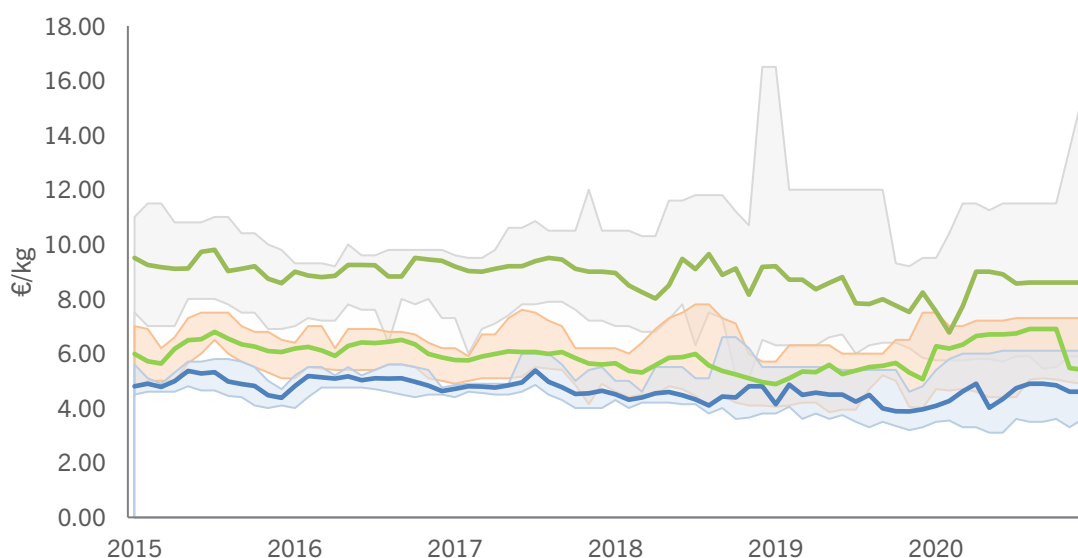


Figure 6. Price (€/kg) of European seabass from 2015 to 2020 in Mercamadrid by size: blue small, green medium, grey big. Shaded area indicates the min and max price. The line indicates the most frequent price [8].

Consumption

Due to the lack of direct data apparent consumption was calculated similar to Llorente et al. 2020 [9], where consumption is calculated in the following manner:

$$\text{Aquaculture production} + \text{Fishing production} + \text{Imports} - \text{Exports} = \text{Consumption}$$

Original data were extracted from FAO statistics dataset [1]. This form of estimating apparent consumption resulted in a group of countries with negative values of consumption due to exporting more than what they produced or imported. This is obviously not correct and highlights that FAO data are dependent upon countries reporting.

World

- Europe is the main consumer of European seabass in 2018 with 111,498 Tn [1] (Figure 7) followed by Asia with 90,000 Tn.
- Oceania has a consumption of European seabass of 4 Tn.

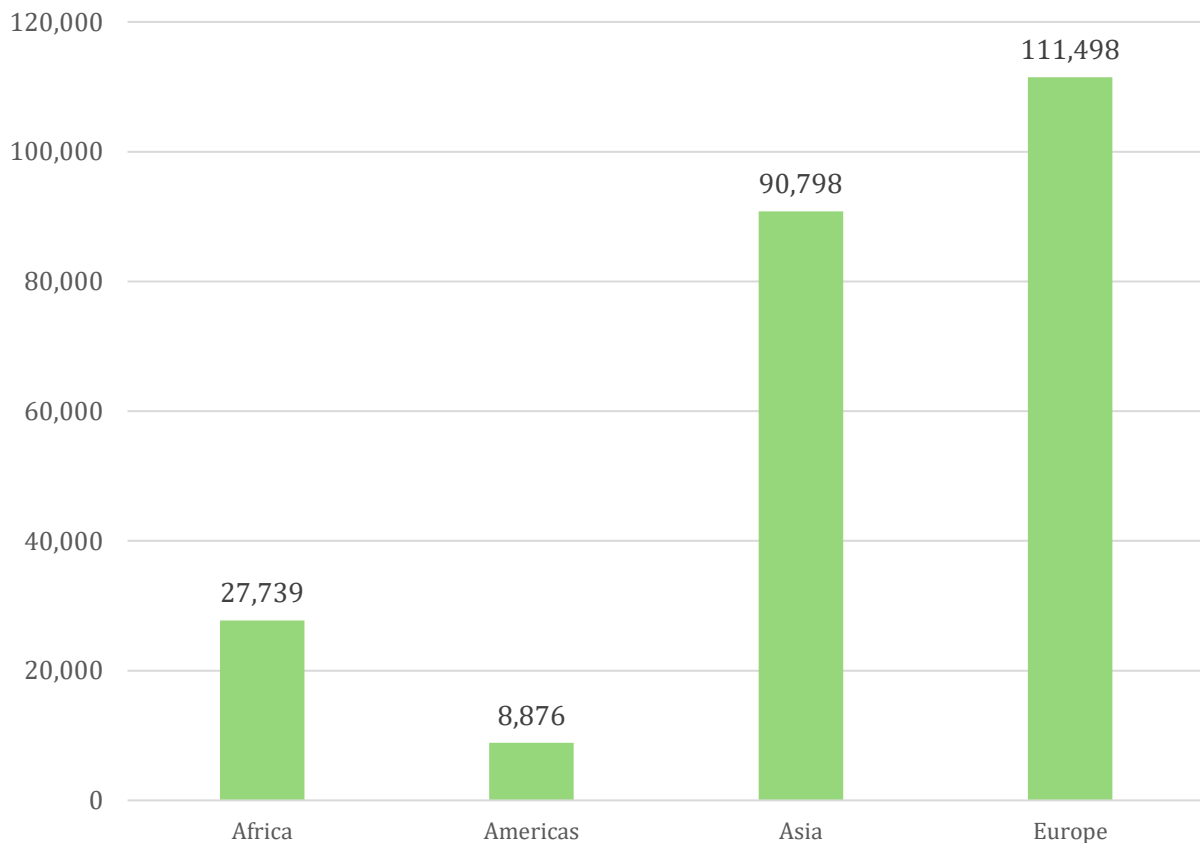


Figure 7. Estimated apparent consumption of European seabass per continent in 2018 [1], [9].

- Turkey is the first consumer of European seabass worldwide with 74,500 Tn of consumption.
- Egypt is the 4th with 25,210 Tn and makes up for the most of Africa consumption.
- USA is the 7th with 8,049 Tn and Afghanistan the 10th with 4,345 [1].

EU

- In 2018, total consumption of EU was estimated at 97,000 Tn.
- Italy is the EU country with the highest apparent consumption of European seabass in 2018 (Table 5).

Table 5. Estimated apparent consumption of European seabass in the five main consumers of EU in 2018.

Country	Tonnes	Per capita (kg)
Italy	34,598	0.57
Spain	26,427	0.56
Greece	10,672	1.01
France	10,222	0.15
Portugal	7,682	0.75

- According to FAO statistics data [1], Netherland has a negative consumption of approximately 1,000 Tn due to having more exports than imports and no production. This might be an artifact of the dataset or the country not reporting data properly. There are other countries within the EU but these negative values are small, and are likely to be due to errors.
- Consumption peak at mid-year coinciding with an increase in restaurant dining in the Mediterranean basin

UK

- United Kingdom had an estimated apparent consumption of 7,418 Tn in 2018.

Housing systems

- European seabass production is divided between (on parenthesis it is indicated the main water type used in that system) [10], [11]:
 - Extensive lagoons (brackish/fresh)
 - Semi-intensive lagoons (brackish/fresh)
 - Floating cages (marine)
 - Tanks/Ponds (brackish/fresh, although it is possible to use marine in tanks)
- Extensive and semi-intensive lagoon systems are de traditional rearing method. Floating cages and tanks were developed in the decade of 1980's [11].
- Exact production per system is unknown. Still, it is known that the main production system is floating cages.
- Data about type of water used is available. It can be equalled to marine as floating cages and brackish and fresh water as the rest of systems (Figure 8) [1]:
 - Marine production is 86.67% worldwide, and 98.42% in the EU.
 - Brackish and freshwater production is 13.33% worldwide, and 1.58% in the EU.
 - Differences between world and EU production come from Egypt and Tunisia, which all their production is done in brackish/freshwater systems.
 - Spain is the main producer in EU in brackish/freshwater systems

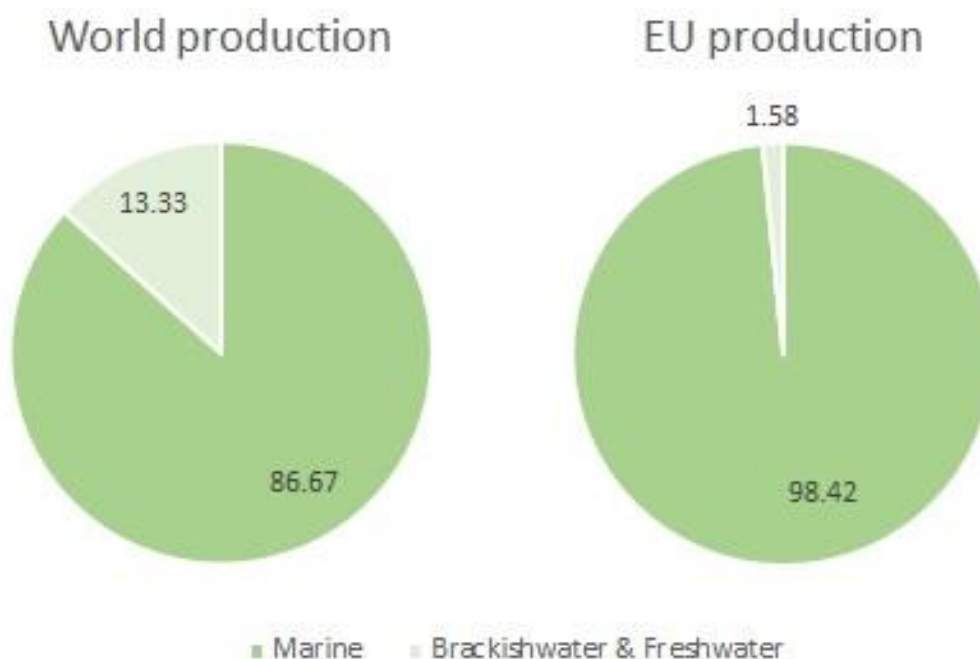


Figure 8. Distribution of European seabass production (%) between water type used for production at a world level and EU level [1].

Diseases and mortality

Access to mortality and disease data is difficult for European seabass industry. It does not exist a systematic reporting for this sector and companies are reluctant to share these data due to reputation awareness and confidentiality reasons. Also, many companies just do not keep adequate health records and there is no differentiation between mortality due to diseases or to other causes [12].

Diseases

- 74% of disease reports during on-growing were linked to bacterial infections (Table 6).
- Vibriosis (*Vibrio* sp.) was the most frequent disease reported, followed by tenacibaculosis and photobacteriosis (Table 6).

Table 6. Percentage of disease records for the on-growing stage of European seabass reported per type [12]

Bacteria	74%
Vibrio sp.	44%
Tenacibaculosis	15%
Photobacteriosis	15%
Virus	14%
VER-VNN	14%
Parasite	3%
Crustacean	2%
Amyloodinium	1%
Dactylogyrus	1%
Other	12%
Not significant pathologies	12%

Mortality

- Survival at the end of the period is a median of 85% with a minimum of 64% and maximum of 100%. The mode of the data used was 80% [12].
- Mortality (15%) was divided between 10% identified to be related to pathogens and 5% due to other causes.
- There is a correlation that needs to be further tested: higher stocking density higher mortality related to pathologies.
- Other relations that need further research:
 - Temperatures in the rise in spring and high summer temperatures seem to be related with more reported diseases.
 - Not grading appear to be related with higher mortality.
 - Batches brought to the farm from external trade had higher mortality.

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