



AQUACULTURE SURVEY: 2023

The Hellenic Statistical Authority (ELSTAT) announces the results of the Survey on Aquaculture for the reference year 2023.

A. QUANTITY AND VALUE OF REARED OR CULTIVATED SPECIES

Total production of aquaculture reared – cultivated species in Greece increased by 0.4% and the corresponding value decreased by 18.9%, in 2023 compared with 2022. More specifically, 141,909.2 tonnes with a total value of 691,160.2 thousand euros were farmed in 2023, while 141,365.4 tonnes with a total value of 851,891.4 thousand euro were farmed in 2022 (Table 1).

Table 1. Quantity and value of reared or cultivated species, 2022 – 2023

Quantity in tonnes, value in thousand euros

Cultivated / Reared species	2022 ⁽¹⁾		2023		Change (%) 2023/2022	
	Quantity	Value	Quantity	Value	Quantity	Value
General total	141,365.4	851,891.4	141,909.2	691,160.2	0.4	-18.9
Fish	130,886.6	845,063.6	123,800.9	678,590.4	-5.4	-19.7
Common sole	0.6	3.6	2.6	12.2	340.8	240.0
Meagre	5,697.0	42,139.6	4,449.1	21,677.5	-21.9	-48.6
European seabass	47,144.9	342,738.7	44,200.8	284,971.3	-6.2	-16.9
White seabream	7.1	23.0	1.7	4.9	-75.8	-78.8
Gilthead seabream	70,256.5	403,377.5	65,474.0	319,843.8	-6.8	-20.7
Red porgy	4,792.9	44,180.3	6,454.7	37,598.6	34.7	-14.9
Other fish	2,987.7	12,600.9	3,217.9	14,482.0	7.7	14.9
Crustaceans	119.6	152.4	77.0	101.5	-35.6	-33.4
Mediterranean shore crab	118.8	146.4	73.4	75.8	-38.3	-48.2
Other crustaceans	0.8	6.0	3.6	25.8	350.5	326.5
Shellfish (bivalve molluscs)	10,298.7	5,899.5	18,010.4	11,911.1	74.9	101.9
Mediterranean mussels	10,283.9	5,816.1	18,008.4	11,897.3	75.1	104.6
Other shellfish	14.9	83.4	2.0	13.8	-86.3	-83.5
Aquatic plants-algae	57.5	652.6	17.6	408.3	-69.4	-37.4
Spiroulina	57.5	652.6	17.6	408.3	-69.4	-37.4
Fish eggs	2.9	123.2	3.2	148.8	11.2	20.8

(1) Revised data

Notes: 1. Any discrepancies between sums and totals as well as percentages are due to rounding.

2. Data regarding the Fish species "Flathead grey mullet", "Common carp", "Common pandora", "Greater amberjack", "Shi drum", "Sharpsnout seabream", "Sturgeons nei", "Rainbow trout", "Coho(=Silver) salmon", "Common dentex" and "Eels", the data regarding the Crustaceans species "Kuruma prawn" and "Marine crustaceans nei", the data regarding the Shellfish (bivalve molluscs) species "Striped venus", "European flat oyster" and "Marine molluscs nei" and the eggs of the fish species "Flathead grey mullet" and "Coho(=Silver) salmon" were confidential in the year 2022 or/and 2023 and therefore are not published. For reasons related to compliance with the European Statistics Code of Practice on completeness, cohesion and comparability of the produced statistics, the relevant data were added to the variable "Other fish", "Other crustaceans" and "Other shellfish" of the corresponding classification groups.

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The changes in the quantity and value of the reared or cultivated species, **by main classification group**, as presented in Table 1, are as follows:

Fish: in 2023 compared with 2022, the quantity and the corresponding value decreased by 5.4% and 19.7% respectively. More specifically, 123,800.9 tonnes of fish with a total value of 678,590.4 thousand euro were farmed in 2023, while 130,886.6 tonnes of fish with a total value of 845,063.6 thousand euro were farmed in 2022.

Crustaceans: in 2023 compared with 2022, the quantity and the corresponding value decreased by 35.6% and 33.4% respectively. More specifically, 77.0 tonnes of crustaceans with a total value of 101.5 thousand euro were farmed in 2023 and 119.6 tonnes with a total value of 152.4 thousand euro were farmed in 2022.

Shellfish (bivalve molluscs): in 2023 compared with 2022, the quantity and the corresponding value increased by 74.9% and 101.9% respectively. More specifically, 18,010.4 tonnes of shellfish with a total value of 11,911.1 thousand euro were farmed in 2023 and 10,298.7 tonnes with a total value of 5,899.5 thousand euro were farmed in 2022.

Aquatic Plants-Algae: in 2023 compared with 2022, the quantity and the corresponding value decreased by 69.4% and 37.4% respectively. More specifically, 17.6 tonnes of aquatic plants-algae with a total value of 408.3 thousand euro were farmed in 2023 and 57.5 tonnes with a total value of 652.6 thousand euro were farmed in 2022.

Fish eggs: in 2023 compared with 2022, the quantity and the corresponding value increased by 11.2% and 20.8% respectively. More specifically, 3.2 tonnes of fish eggs with a total value of 148.8 thousand euro were farmed in 2023 and 2.9 tonnes with a total value of 123.2 thousand euro were farmed in 2022.

The changes in the quantity and value of the farmed or cultivated aquaculture species, **by type of water**, as presented in Table 2, are as follows:

Fresh water: in 2023 compared with 2022, the quantity and the corresponding value decreased by 6.2% and 8.7% respectively. More specifically, 2,487.8 tonnes with a total value of 11,233.1 thousand euro were farmed in 2023 and 2,652.5 tonnes with a total value of 12,307.3 thousand euro were farmed in 2022.

Brackish water: in 2023 compared with 2022, quantity and the corresponding value decreased by 18.8% and 1.6% respectively. More specifically, 588.9 tonnes with a total value of 2,123.3 thousand euro were farmed in 2023 and 725.1 tonnes with a total value 2,158.6 thousand euro were farmed in 2022.

Sea water: in 2023 compared with 2022, quantity increased by 0.6% and the corresponding value decreased by 19.1%. More specifically, 138,832.5 tonnes with a total value of 677,803.8 thousand euro were farmed in 2023 and 137,987.9 tonnes with a total value of 837,425.6 thousand euro were farmed in 2022.

Table 2. Quantity and value of aquaculture production, by type of water, 2022 – 2023

Quantity in tonnes, value in thousand euros

Water Type	2022 ⁽¹⁾		2023		Change (%) 2023/2022	
	Quantity	Value	Quantity	Value	Quantity	Value
Fresh	2,652.5	12,307.3	2,487.8	11,233.1	-6.2	-8.7
Brackish	725.1	2,158.6	588.9	2,123.3	-18.8	-1.6
Sea	137,987.9	837,425.6	138,832.5	677,803.8	0.6	-19.1

(1) Revised data.

Note: Any discrepancies between sums and totals as well as percentages are due to rounding.

B. PRODUCTION OF FISH FRY IN HATCHERIES AND NURSERIES

The changes in the quantity of fish fry produced by species, as presented in Table 3, are as follows:

Overall production of fish fry: total quantity of fish fry increased by 0.5% in 2023 compared with 2022. More specifically, fish larva amounted to 330,701 thousand juveniles in 2023 and 329,124 thousand juveniles in 2022.

More specifically, the production of fish fry by main species:

European seabass: the quantity of fry decreased by 3.0% in 2023 compared with 2022. More specifically, european seabass larva amounted to 129,542 thousand juveniles in 2023 and 133,482 thousand juveniles in 2022.

Rainbow trout: the quantity of fry increased by 63.7% in 2023 compared with 2022. More specifically, rainbow trout larva amounted to 12,544 thousand juveniles in 2023 and 7,665 thousand juveniles in 2022.

Gilthead sea bream: the quantity of fry increased by 1.5% in 2023 compared with 2022. More specifically, gilthead sea bream larva amounted to 176,871 thousand juveniles in 2023 and 174,256 thousand juveniles in 2022.

Red porgy: the quantity of fry decreased by 18.3% in 2023 compared with 2022. More specifically, red porgy larva amounted to 9,763 thousand juveniles in 2023 and 11,945 thousand juveniles in 2022.

Table 3. Production of fry in hatcheries and nurseries, by species, 2022 – 2023*In thousand juveniles*

Species	2022 ⁽¹⁾	2023	Change (%) 2023/2022
Total	329,124	330,701	0.5
European seabass	133,482	129,542	-3.0
Rainbow trout	7,665	12,544	63.7
Gilthead seabream	174,256	176,871	1.5
Red porgy	11,945	9,763	-18.3
Other	1,776	1,981	11.5

*(1) Revised data.***Notes:** 1. Any discrepancies between sums and totals as well as percentages are due to rounding.

2. Data regarding the Fish species "Common carp", "Sharpsnout seabream", "Coho(=Silver) salmon", "Marine fishes nei" and the Shellfish (bivalve molluscs) species "Mediterranean mussel" and "Marine molluscs nei" were confidential in the year 2022 or/and 2023 and therefore are not published. For reasons related to compliance with the European Statistics Code of Practice on completeness, cohesion and comparability of the produced statistics, the relevant data were added to the variable "Other".

C. EMPLOYED PERSONS BY TYPE OF EMPLOYMENT RELATIONSHIP

The changes in the total annual employment as presented in Table 4 are as follows:

The **total** number of employed persons increased by 2.7% in 2023 compared with 2022. More specifically, the total number of employees amounted to 4,099 in 2023 and 3,993 in 2022.

More specifically, the changes in employment, by type of employment relationship, are as follows:

Permanent staff increased by 2.4% in 2023 compared with 2022. More specifically, permanent employees amounted to 3,636 in 2023 and 3,552 in 2022.

Temporary staff increased by 5.0% in 2023 compared with 2022. More specifically, temporary employees amounted to 463 in 2023 and 441 in 2022.

Table 4. Number of employed persons in aquaculture units, 2022 – 2023

Employment type	2022 ⁽¹⁾	2023	Change (%) 2023/2022
Total	3,993	4,099	2.7
Permanent staff	3,552	3,636	2.4
Temporary staff	441	463	5.0

*(1) Revised data.***Note:** 1. Any discrepancies between sums and totals as well as percentages are due to rounding.

D. CHARACTERISTICS OF AQUACULTURE FACILITIES

The facilities of the operational aquaculture units as well as the water volume and area used in 2022 and 2023 are as follows (Table 5):

The **facilities** that operated in aquaculture production, regardless of method, decreased by 1.0% in 2023 compared to 2022. More specifically, the total number of facilities amounted to 12,766 in 2023 and 12,895 facilities in 2022.

The **volume of water** used in aquaculture production increased by 4.1% in 2023 compared to 2022. More specifically, the volume of water used amounted to 19.7 million cubic meters in 2023 and 19.0 million cubic meters in 2022.

The **area** of aquaculture facilities used in aquaculture production increased by 1.3% in 2023 compared to in 2022. More specifically, the utilized area amounted to 263.3 thousand stremmas in 2023 and 259.9 thousand stremmas in 2022.

Table 5. Facilities, water volume and areas used in aquaculture production by cultivation method, Greece total 2022 – 2023

Facilities in number, water volume in millions of m³, area in thousands of stremmas (=0.1 ha)

Classification group of cultivated species by cultivation method	2022			2023			Change (%) 2023/2022		
	Facilities	Water volume	Area	Facilities	Water volume	Area	Facilities	Water volume	Area
General total	12,895	19.0	259.9	12,766	19.7	263.2	-1.0	4.1	1.3
Fish	11,232	19.0	251.5	11,483	19.7	244.4	2.2	4.1	-2.8
Cages	7,872	18.6	—	7,739	19.3	—	-1.7	3.8	—
Tanks	2,985	0.4	—	3,315	0.5	—	11.1	22.8	—
Ponds	370	—	251.0	425	—	243.9	14.9	—	-2.8
Other	5	—	0.5	4	—	0.5	20.0	—	0.0
Crustaceans	20	—	5.1	28	—	15.6	40.0	—	204.3
Shellfish (bivalve molluscs)	1,610	—	3.3	1,222	—	3.2	-24.1	—	-3.0
Off bottom	1,605	—	2.7	1,213	—	3.0	-24.4	—	10.9
Other	5	—	0.6	9	—	0.2	80.0	—	-66.7
Aquatic plants-algae	33	—	0.02	33	—	0.03	0.0	—	8.3
All methods	33	—	0.02	33	—	0.03	0.0	—	8.3

Notes: 1. Any discrepancies between sums and totals as well as percentages are due to rounding.

2. Data regarding the methods of production “Enclosures and pens”, Recirculation systems” and “Other methods (dams etc.)” of the classification group “Fish”, the methods of production “Ponds” and “Enclosures and pens” of the classification group “Crustaceans” and the methods of production “On bottom” and “Other methods” of the classification group “Shellfish (bivalve molluscs)”, were confidential in the year 2022 or/and 2023 and therefore are not published. For reasons related to compliance with the European Statistics Code of Practice on completeness, cohesion and comparability of the produced statistics, the relevant data were added to the variable “Other” of the respective classification group.

EXPLANATORY NOTES

Survey on aquaculture The Hellenic Statistical Authority has been conducting on an annual basis, since 1995, a statistical survey on Aquaculture.

Purpose The main purpose of the Survey on Aquaculture is to compile data on the production and value of the cultivated species by cultivation method, production of fry in hatcheries/nurseries, the number of employees and the facilities characteristics of the aquaculture units in Greece.

Legal basis Regulation (EC) 762/2008 of the European Parliament and of the Council of 9 July 2008 on the submission by Member States of statistics on aquaculture and repealing Council Regulation (EC) No 788/96.

Reference period The survey data refers to the year 2023.

Survey Methodology The survey is census-based and covers all aquaculture units operating in Greece.

Statistical unit of the survey is the enterprise – production unit engaged in the rearing - cultivation of aquatic organisms (fish, shellfish, crustaceans and aquatic plants), under controlled conditions of reproduction and growth.

Further information on the Aquaculture Survey methodology can be found at:

<http://www.statistics.gr/en/statistics/-/publication/SPA06/>

- Definitions**
1. **Aquaculture:** According to Regulation (EC) No 762/2008, aquaculture is defined in Article 3 of Regulation (EC) No 1198/2006, as the rearing or cultivation of aquatic organisms using techniques designed to increase the production of the organisms in question beyond the natural capacity of the environment; the organisms remain the property of a natural or legal person throughout the rearing or culture stage, up to and including harvesting.
 2. **Rearing – cultivation of aquatic organisms:** any form of intervention in the growth process, with the aim of enhancing production (e.g. replenishment of stocks, feeding, protection from natural enemies, etc.).
 3. **Aquaculture facilities:** any fixed structure that an enterprise/unit uses for the cultivation - rearing of aquatic organisms. Aquaculture facilities are differentiated according to the production method used.
 4. **Production methods:** For fish and crustaceans the methods are distinguished in “cages”, “ponds”, “tanks”, “Enclosures and pens”, “Recirculation systems”, whereas for Shellfish (bivalve molluscs) in on bottom, off bottom and other methods:
 5. **Hatcheries and nurseries:** places for the artificial breeding, hatching and rearing through the early life stages of aquatic organisms.
 6. **Production environment:** aquaculture rearing - culture can take place in fresh, brackish and marine waters. In particular:
 - 6a. **Fresh water:** means water which has a constantly negligible salinity.
 - 6b. **Salt water:** means water where the salinity is appreciable and constant
 - 6c. **Brackish water:** means appreciable salinity but not at a constantly high level: the salinity may be subject to periodic variation due to the influx of fresh or sea waters.
 7. **Production volume:**
 - 7a. for fish, crustaceans, molluscs and other aquatic organisms, the live weight equivalent of the product. For molluscs, the live weight includes the weight of the shell. It is measured in kilograms (Kg).
 - 7b. for aquatic plants, the weight of the liquid product. It is measured in kilograms (Kg).
 8. **Unit value of production:** the total value of production in euros (€).

References More information on the Aquaculture Survey methodology, analytical tables, and the survey questionnaire can be found at:

<http://www.statistics.gr/en/statistics/-/publication/SPA06/>