

1. Aquaculture in Turkey and the importance of it in human health

Table 1. Global Fish Production and Utilization in 1990-2012 (in million tons)

Production		1990	1995	2000	2005	2012
<i>Inland</i>	Aquaculture	8.17	13.86	21.3	26.8	41.9
	Capture	6.59	7.38	8.7	9.4	11.6
	<i>Total Inland</i>	14.76	21.24	30.0	36.2	53.5
<i>Marine</i>	Aquaculture	4.96	10.42	14.2	17.5	24.7
	Capture	79.29	85.62	86.8	82.7	79.7
	<i>Total Marine</i>	84.25	96.04	101.0	100.2	104.4
Total Aquaculture		13.13	24.28	35.5	44.3	66.6
Total Capture		85.88	93.00	95.5	92.1	91.3
<i>Total World Fisheries</i>		99.01	117.28	131.0	136.4	158.0
<i>Utilization</i>		70.82	86.49			
Human Consumption		-	-	96.8	107.3	136.2
Non-Food Uses		-	-	34.2	29.1	21.7
Population (billions)		-	-	6.1	6.5	7.1
Per capite food fish supply (kg)		-	-	15.9	16.5	19.2

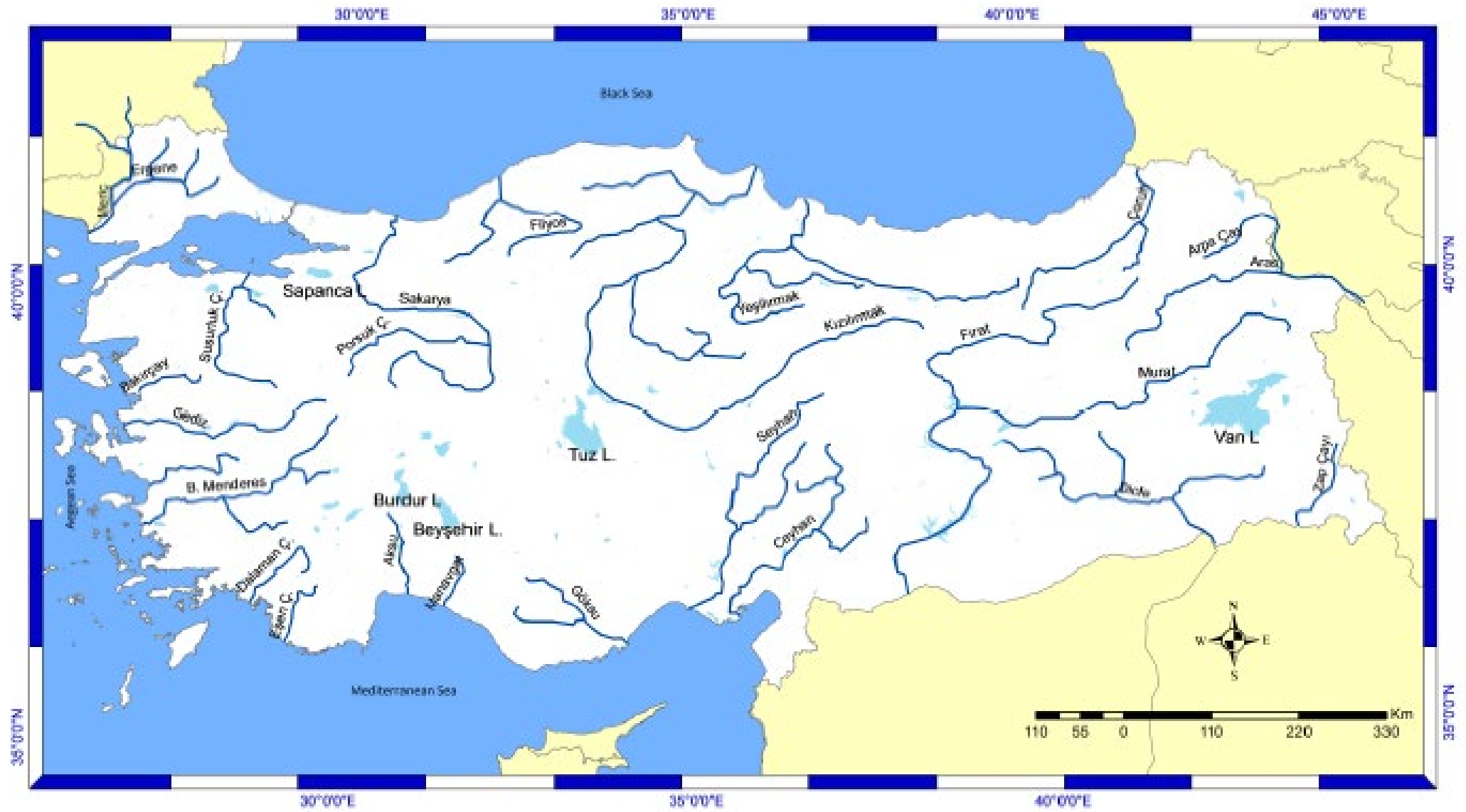
Notes: Excluding aquatic plants.

<http://www.fao.org/> Statistics for different years.

Table 2. Distribution of Fish Farmers by Continents (in Thousand)

Fish Farmers	1995	2000	2005	2010	2012
Africa	65	91	140	231	298
Asia	7 762	12 211	14 630	17 915	18 175
Europe	56	103	91	102	103
South America and Caribbean	155	214	239	248	269
North America	6	6	10	9	9
Oceania	4	5	5	5	6
World	8049	12632	15115	18512	18860

(Fao, Statistics for different years.)



Map 1. Water Potencial in Turkey

Table 3. Amount of Fishery Products by Capture and Aquafarming (Selected Years between 1985 and 2013)

Years	Capture (Ton)			Aquaculture (Ton)			TOTAL	Aquaculture Percentage (%)
	Inland	Marine	Total	Inland	Marine	Total		
1985	45471	532602	578073	0	0	0	578073	0.0
1990	37315	342017	379332	4237	1545	5782	385114	1.5
1995	44983	582610	627593	13113	8494	21607	649200	3.3
1996	42202	474243	516445	17960	15241	33201	549646	6.04
1997	50460	404350	454810	27300	18150	45450	500260	9.09
2000	42824	460521	503345	43385	35646	79031	582376	13.6
2011	37097	477658	514755	100446	88344	188790	703545	26.8
2012	36120	396322	432442	111557	100 853	212410	644852	32.9
2013	35074	339047	374121	123019	110374	233393	607515	38.4

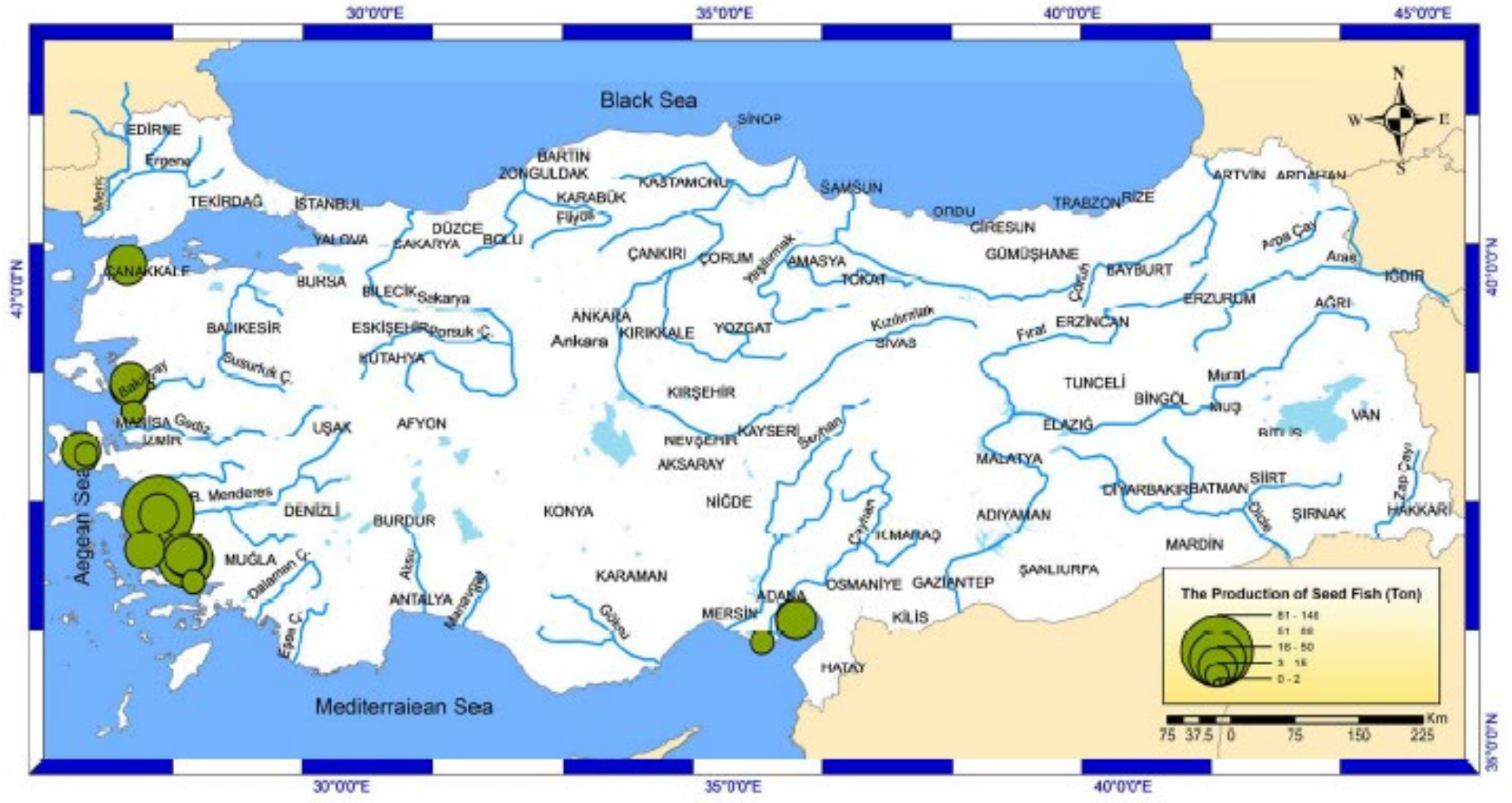
Table 4. Inland and Marine Fish Species Farmed and Their Respective Production Amounts (in Ton)

Fish Species	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Total	94010	118 77	128943	139873	152186	158729	167141	188790	212410	233393.9
Inland										
Trout	43432	48033	56026	58433	65928	75657	78165	100239	111335	122873.3
Mirror Carp	683	571	668	600	629	591	403	207	222	145.5
Marine										
Trout	1650	1249	1633	2740	2721	5229	7079	7697	3234	5186
Gilt-head sea bream	20435	27634	28463	33500	31670	28362	28157	32187	30743	35701.1
Sea Bass	26297	37290	38408	41900	49270	46554	50796	47013	65512	67912.5
Other	1513	3500	3745	2700	1968	2336	2541	1447	1364	1575.3

From the Records of the Ministry of Food, Agriculture and Livestock

Table 5. Saltwater Fish Hatcheries in Turkey - February 2013 (BSGM, 2013)

Project Title	Location	Capacity (In Ton)	Produced Species
AKUVATUR-Karataş	ADANA-Karataş	39	Gilt-head sea bream, Sea bass, Dentex, Red Seabream, Bluespotted Seabream, Meager, Red Mullet, Red Striped Seabream, Common Seabream, Axillary Seabream, Sharp Snout Seabream Sargo, Sole, Amberjack
YUNUSLAR	ADANA-Yumurtalık	15	Gilt-head sea bream, Sea bass, Shrimp
EGEMAR	AYDIN-Didim	39	Gilt-head sea bream, Sea bass, Meager, Corb, White Grouper, Dentex, Red Seabream, Common Seabream, Sharp Snout Seabream Sargo, Amberjack
KILIÇ-Bafa	AYDIN-Söke	146	Gilt-head sea bream, Sea bass, Striped Seabream, Sharp Snout Seabream Sargo, Corb, Common Seabream, White Grouper, Dentex, Red Seabream, Meager
SERÇİN	AYDIN-Söke	30	Gilt-head sea bream, Sea bass
İDA GIDA	ÇANAKKALE-Lapseki	40	Gilt-head sea bream, Sea bass
AKUA-TEK	İZMİR-Dikili	38	Gilt-head sea bream, Sea bass, Dentex, Red Seabream, Meager, Common Seabream, Corb, Clown
ÇAMLI-Alaçatı	İZMİR-Çeşme	50	Gilt-head sea bream, Sea bass
ÇAMLI-İldırı	İZMİR-Çeşme	10	Gilt-head sea bream, Sea bass, Sharp Snout Seabream Sargo, Dentex, Axillary Seabream, Striped Seabream, Brown Meager, Oyster, Scallop, Cockle
İLKNAK	İZMİR-Dikili	20	Gilt-head sea bream, Sea bass, Sharp Snout Seabream Sargo, Dentex, Saddled Seabream, Meager
AKUVATUR -Yeni Şakran	İZMİR-Aliağa	7.5	Gilt-head sea bream, Sea bass, Dentex, Sharp Snout Seabream Sargo, Brown Meager, White Seabream, Corb, Common Seabream, Red Seabream, Meager, Red Striped Seabream, Axillary Seabream
AKUA-TEK -TIRKULAZ MARİN	İZMİR-Bergama	2	Gilt-head sea bream, Sea bass
AKUVATUR-Avşar	MUĞLA-Milas	38	Gilt-head sea bream, Sea bass, Sharp Snout White Grouper, Meager, Dentex, Corb, Barbun, Red Striped Seabream, Common Seabream, Axillary Seabream, Sole, Amberjack
HATKO	MUĞLA-Ören	15	Gilt-head sea bream, Sea bass
KILIÇ-Güvercinlik	MUĞLA-Milas	39.5	Gilt-head sea bream, Sea bass, Dentex, Corb, Amberjack
KILIÇ- Akarca	MUĞLA-Milas	39	Gilt-head sea bream, Sea bass, Turbot, Sole
KILIÇ-Ören	MUĞLA-Milas	80	Gilt-head sea bream, Sea bass, Sole, Amberjack, Dentex, Corb, Sharp Snout Seabream Sargo, Red Seabream, White Grouper



Map 2. Distribution of Fish Hatcheries in Turkey

Table 8. Gilt-head sea bream Export (Patrona, 2013)

Product Type	Countries	Percentage (%)
Fresh, Cooled	Russia	14
	Lebanon	19
	Holland	16
	Italy	14
Filet (Fresh, Cooled)	Holland	92
	Italy	7
Frozen	Lebanon	67
	Germany	19
	Holland,	4
	Russia	
Fillet (Frozen)	Italy	50
	Holland	21
	United	
	Kingdom	17

Table 9. Surface Area of Major Lakes in Turkey (35 km² and over) (TUIK, 2014)

Lake	Km ²	Lake	Km ²
Van	3713	Bafa	60
Tuz	1500	Erçek	98
Beyşehir	656	Hazar	86
Eğirdir	468	Köyceğiz	52
Akşehir	353	Işık	49
Izmit	298	Nazik	48
Burdur	200	Sapanca	47
Kuş (Manyas)	166	Salda	45
Uşak	134	Yay	37
Eber	126	Akyatan	35
Çıldır	115		

Table 10. Major Rivers and Their Lengths (500 km and over) (TUIK, 2014)

Rivers	Length (km)
Kızılırmak	1355
Fırat (in Turkey)	1263
Sakarya	824
Murat	562
Seyhan	560
Aras (in Turkey)	548
Dicle (in Turkey)	523
Yeşilirmak	519
Ceyhan	509

Table 11. Major Reservoir and Their Surface Areas (TUIK, 2014)

Reservoir	Surface Areas (km ²)
Atatürk	817.0
Keban	675.0
Karakaya	268.0
Hürfanlı	263.0
Manyas	167.4
Altınkaya	118.3
Alparslan-1	114.8
Yamula	88.6
Çatalan	81.9
Sarıyar	78.2
Boyabat	65.5
Kılıçkaya	64.4
Seyhan	63.0
Ermenek	58.7
Kralkızı	57.5
Birecik	56.3
Obruk	50.2
Aslantaş	49.9

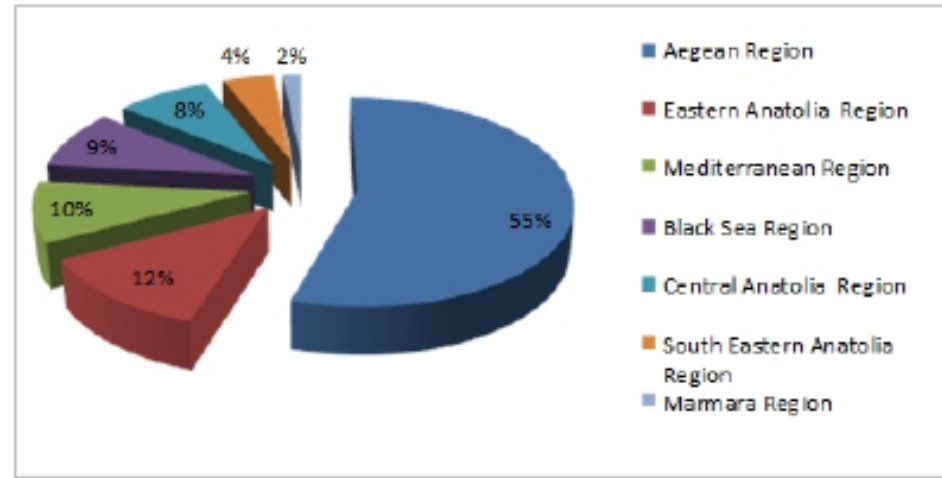


Figure 1. Distribution of Aquaculture in Turkey by Region (2013)

Table 14. Aquaculture in the Aegean Region (Species and Amounts) (2013)

PROVINCES	SPECIES	AMOUNTS (TON)
Afyonkarahisar	Trout (Inland)	2808.5
Aydın	Trout (Inland)	2895.3
	Gilt-head sea bream (Marine)	223.4
	Bass (Marine)	1265.1
Denizli	Trout (Inland)	3720.0
İzmir	Trout (Inland)	391.7
	Gilt-head sea bream (Marine)	14702.2
	Bass (Marine)	19344.7
	Other(Marine)	907.5
Kütahya	Trout (Inland)	2120.8
Manisa	Trout (Inland)	1133.3
	Mirror Carp (Inland)	44
Muğla	Trout (Inland)	13900.0
	Gilt-head sea bream (Marine)	20000.0
	Bass (Marine)	43500.0
	Other(Marine)	637.8
Uşak	Trout (Inland)	399.9
	Mirror Carp (Inland)	12.5
TOTAL		128006.7

Amounts (2013)

PROVINCES	AMOUNTS (Ton)
Muğla	78037.8
İzmir	35346.1
Elazığ	14286.3
Kayseri	11227.0
Burdur	9724.0
Trabzon	5953.6
Aydın	4383.8
Malatya	4350.0
Şanlıurfa	4297.7
Tunceli	3779.0
Total	177385.3
Other	62008.6
Grand Total	233393.9

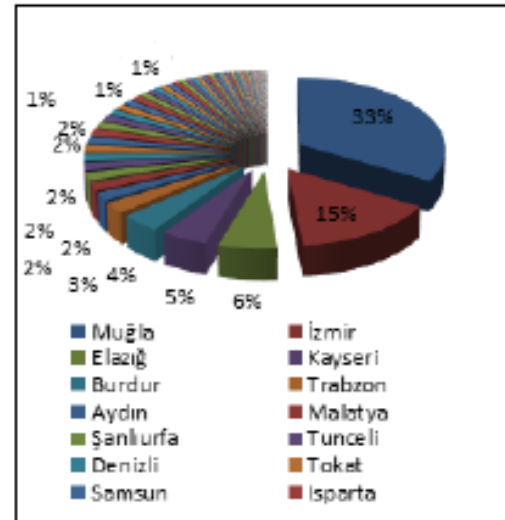


Figure 9. Distribution of Aquaculture in Turkey by Provinces (2013)

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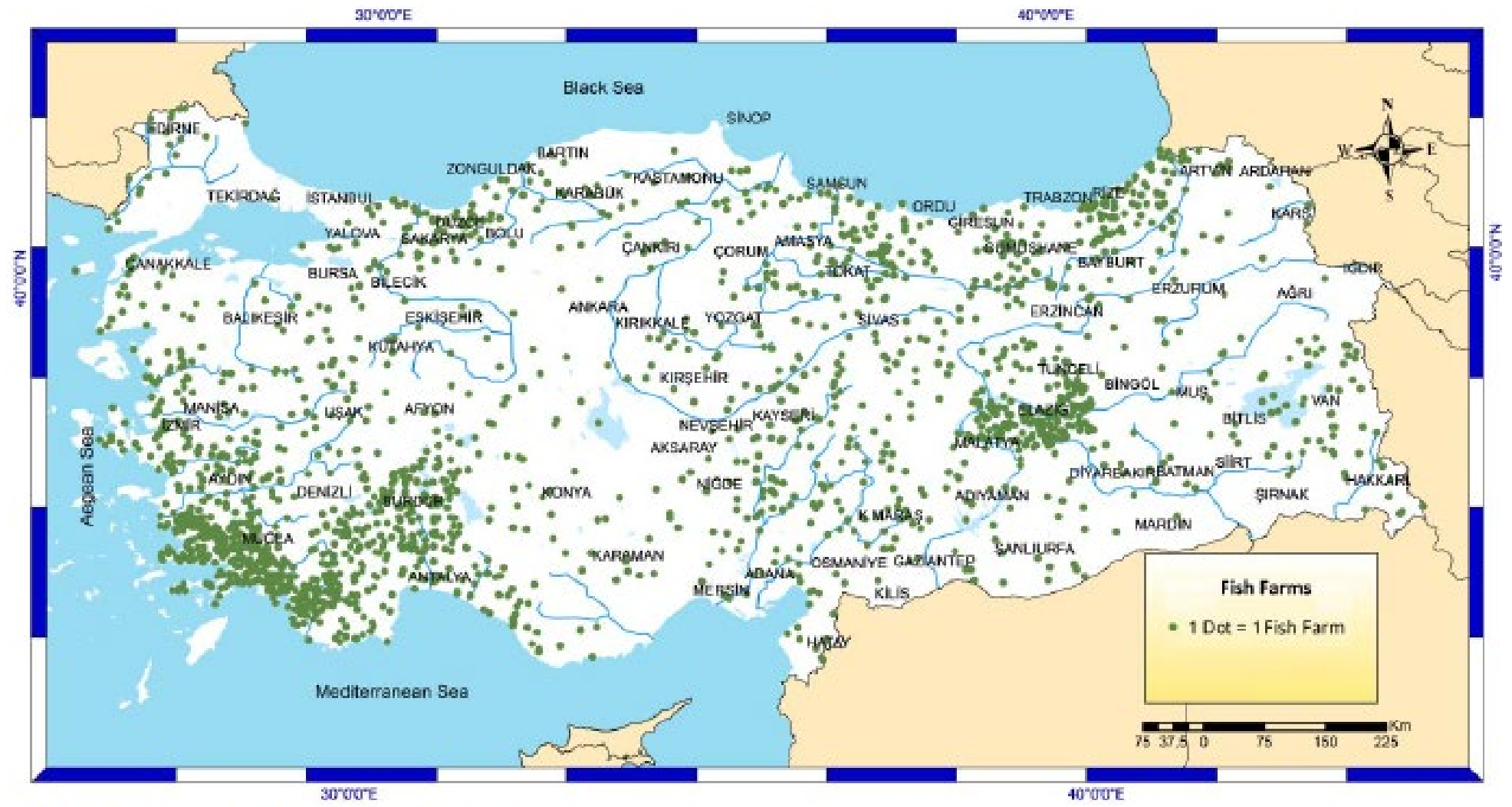
Table 22. Top Ten Provinces by Total Project Capacity (2013)

PROVINCES	PROJECT CAPACITY (Ton)
Muğla	111189
Afyonkarahisar	83388
İzmir	70264
Elazığ	31404
Kayseri	29660
Aydın	15929
Trabzon	13729.5
Malatya	10528
Şanlıurfa	10330
Burdur	8639
Total	385060.5
Other	70271
Grand Total	455331.5

Calculated with data from www.tarim.gov.tr

Table 23. Top Ten Provinces by the Number of Facilities (2013)

PROVINCES	NUMBER OF FACILITIES
Muğla	354
Elazığ	158
Antalya	96
İzmir	85
İsparta	82
Trabzon	82
Malatya	78
Burdur	69
Sivas	52
Mersin	51
Total	1107
Grand Total	2193



Map 11. Distribution of Fish Farms in Turkey by Provinces