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Socio-economic profile of the small scale fisher: The sample of Akçakoca

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Abstract

Akçakoca, which acts as a bridge between the Marmara Region and the Black Sea Region, has been selected as a research area because it is one of the most important ports of the Western Black Sea and small-scale fishing is among the important income sources of the district residents. As a matter of fact, there are 200 licensed fishermen and 40 licensed boats in the district according to official data. There is also 1 aquaculture cooperative and 75 businesses that sell fish retail in the district. In the research, it has been tried to understand to what extent the studies conducted so far to find solutions to the problems of fisheries in the region have been effective in the life of small-scale fishermen. For this purpose, face-to-face surveys were conducted with 35 boat owners who could be reached, and the socio-economic status of the boat owners was examined, and the results were evaluated through the SPSS statistics program.

Key Words: fishery, small scale business, socio-economic structure

Introduction

Akçakoca is a district of Düzce province, which has a wide and beautiful beach of 35 km length, located on the western Black Sea coastline and consists of 51 administrative units, including 8 neighborhoods and 43 villages. According to 2016 data, the total population of Akçakoca, which is the most developed and largest district of Düzce, is 37,660, 24,401 in the district center and 13,259 in the villages,. The district, which is a bridge between the Marmara and the Black Sea Regions, has a mild maritime climate (Anonymous, 2020).

Because of its ecological and geographic structure, especially its 2-3 hour distance from big cities such as Ankara, Istanbul and Bursa under current conditions, has caused it to maintain its importance in various aspects throughout history. The district, is a popular region for tourists with the sole blue flag shore of the Black Sea, vegetation and unspoiled nature as well as its sea and beach Vegetation consisting of beech, chestnut, lime, sycamore and oak trees increases the tourism potential. Especially; it attracts a lot of tourists from Ankara, Istanbul, Zonguldak and Bursa provinces.

The income source of 3% of the population in over 1200 settlements on the sea and inland water coasts of our country is fishing (Çelikkale et al., 1999).The most important income sources of Akçakoca are quality nuts, fishing and tourism. In addition, chestnut honey and jams made from mountain strawberries, which are grown intensively in the district, are also income-generating special products of the district. Apart from this, alternative water sports (Melen River rafting facilities) and being a favorite place of amateur fishing line coming from neighboring provinces in recent years are also remarkable features. It is possible to find fresh fish in all seasons in the district. Fishes such as bonito, anchovy, horse mackerel are shipped to the surrounding provinces and districts. In fact, a C-47 type old military aircraft was sunk into the sea to help fish fry and to be used as an artificial reef area in order to develop diving sports (Anonymous 2020).

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Akçakoca was chosen as a research area for these reasons which is a bridge and transition area between the Marmara and the Black Sea regions. In the research; The socio-economic structures of the fishermen in Akçakoca were examined, their problems were determined, the strategic importance and the things to be done in order to maintain their traditional structure were revealed.

Material and Method

There were around 200 fishermen with license and 40 licensed vessels in Akçakoca according to the data on the Akçakoca District Governorship Official Website (2020). In the district, there were also 1 Fisheries Cooperative and 75 retail that sell fishes. The research was conducted during the 2017 hunting season.

The full count method was used to obtain the data due to the limited number of fishermen in the research area. The main material of the study was the information obtained from face-to-face surveys with all 35 boat owners registered and accessible to the Akçakoca fishing port. After entering the data into the computer, frequency analysis was performed with the help of the SPSS statistical program. Stratified sampling was used ın the classification of vessels.

Results

The most caught fish in the region were anchovy, horse mackerel, haddock, red mullet, bluefish and bonito according to the data on the official website of Akçakoca District Governorship (Anonymous, 2020).

Table 1. Absolute and proportional distribution of crew numbers by vessels

Vessels			Number of Crew		
Groups	**Number**	**%**		**Number**	**%**
< 5,3 m	9	25,7	Without Crew	10	28,6
6-8 m	10	28,5	1	4	11,4
8,1-10 m	11	31,4	2	9	25,7
11-24	2	5,8	3	5	14,3
25 m >	3	8,6	4	3	8,6
Total	**35**	**100,0**	6	2	5,7
			17	1	2,9
			18	1	2,9
			Total	**35**	**100,0**

Table 1 shows the absolute and proportional distribution of the vessels. As can be seen from the table, the vessels owned by the fishermen in Akçakoca were generally smaller than 10 meters. According to Ministry of Agriculture and Rural Affairs data, vessels which are 10 meters long and below were small enterprises. Turkey stated that they had problems with the capacity of many fishing boats as in the general (Sağlam and Çalık, 2016; Ceyhan, 2014). Accordingly, the fisheries profile in Akçakoca (85.6%) was mostly composed of small enterprises. Because, 25.7% of the vessels had lengths less than 5.3 m, 28.5% of them were between 6-8 m, and 31.4% of them are between 8.1-10 m. The proportion of vessels larger than 25 m was only 8.6%.

Table 2. Engine powers, ages and construction material of vessels

Engine Powers			Age of Vessels			Construction Material		
HP	**Number**	**%**	**Years**	**Number**	**%**	**Materials**	**Number**	**%**
7-10	10	28,5	5-8	9	25,7	Sheet Iron	3	8,5
11-40	9	25,7	9-13	12	34,3	Wooden	32	91,5
48-90	7	20,0	14-19	8	22,8	Fiber	-	-
114-180	5	14,3	25-35	6	17,2	**Total**	**35**	**100,0**
380-650	4	11,5	**Total**	**35**	**100,0**			
Total	**35**	**100,0**						

The motor power of the vessels is given in table 2. As can be seen from the table, 74.2% of the vessels have engine power less than 100 HP. In the research, it was found that the ratio of the vessels with engine power greater than 100 HP was 25.8%, while the half of mentioned vessels were larger. İt was stated by the fishermen who participated in the survey that the catch rates were high in the past, therefore the motor power of old vessels were high. While the rate of boats over 20 years old was 17.2% in the research, this rate was 24% in the previous study by Yağlıoğlu (2013). When this situation is examined, it is understood that some fishermen have benefited from the ship buyback program. Turkey also enabled by a reduction in the fleet with the retrieval program implemented in 2013-2015 years, the reduction of fishing pressure and is intended to achieve sustainable fishing (Bilgin and Yılmaz, 2019).

Table 3. Type of licenses owned by boat owners, ownership status of vessels and network types used

Type of Licenses			Ownership Status			Network Types		
	Number	**%**		**Number**	**%**		**Number**	**%**
Trawl-Purse Sein	4	11,4	Own	24	68,6	Trawl-Purse Sein	3	4,9
Type D	24	68,6	Family property	5	14,3	Extention	20	32,8
Others	7	20,0	Other	6	17,1	Voli	20	32,8
Total	**35**	**100,0**	**Total**	**35**	100,0	Algarna	9	14,8
						Fishing rod	9	14,8
						Total	**61**	**100,0**

When the license type of the vessels were examined, it was observed that the D-type vessels were in the majority (68.6%) (Table 3). While the rate of vessels such as purse-seiners is 11.4%, the rate of other types of vessels licenses were 20%. On the other hand, as can be seen in Table 3, fishermen mostly used net types such as elongation and voli during the study period. According to the license application of the Ministry of Agriculture, Class A vessels are 15 m and above, B class vessels between 12-15 m, C class vessels between 10-12 m and D class vessels are less than 10 m (Anonymous, 2019)

Table 4. Absolute and proportional distribution of the vessel owners by age, marital status and education

Range Of Age	Number	%	Marital Status	Number	%	Education	Number	%
19-30	4	11,4	Married	30	85,7	Primary School	15	48,4
31-40	8	22,8	Single	4	11,4	Middle School	3	9,7
41-50	6	17,1				High School	9	29,0
51-60	14	40,2				Vocational High School	3	9,7
61 +	3	8,5	Devorced	1	2.9	Junior College	-	-
Total	**35**	**100,0**	**Total**	**35**	**100,0**	University	1	3,2
						Total	**35**	**100,0**

In the study, most of the vessel owners were 40 years old and over (65.8%). The younger fishermen were family members (34.2%) who continued their father's profession. 85.7% of the fishermen who participated in the survey were married and all of them were literate. As a matter of fact, 48.4% of these fishermen were graduated from primary school , 9.7% of them from secondary school, 38.7% of them from high school and only 3.2% of them from university (Table 5).

Table 5. Distribution of birth region, the ownership of their houses and the vehicles they owned of the vessel owners

Ownership of Houses	Number	%	Ownership of Vehicles	Number	%	Birth Region	Number	%
Rent	3	8,6	Car, taxi, van	15	42,9	Akçakoca	27	77,1
Owner	22	62,9	Motorbike	4	11,4	Alaplı	1	2,9
Belong to Parents	9	25,7	Bicycle	1	2,9	Bulgaristan	1	2,9
Other (Brother,etc.)	1	2,9	Other	1	2,9	Düzce	1	2,9
Total	**35**	**100,0**	Nothing	14	40,0	Ereğli	2	5,7
			Total	**35**	**100,0**	Giresun	1	2,9
						Hopa	1	2,9
						Zonguldak	1	2,9
						Total	**35**	**100,0**

Since fishermen had been complaining about the decrease in their income in last years, the ownership status of the fishermen had been examined in the survey. Accordingly, it was determined that 62.9% of the fishermen had their own house, while only 42.9% of them owned only a vehicle. However, the fishermen stated that they owned their houses and vehicles with their previous income they earned from other professions. When the birth places of the vessel owners who participated in the study were examined, it was revealed that all fisherman were of Black Sea origin except one.

Table 6. Distribution of vessel owners by employment status

Employement	Number	%	Years	Number	%	Reasons	Number	%
Fishermen	19	54,4	1-5	1	3,2	As it is a family business	12	20,0
Retired	8	23,0	6-11	8	25,8	Because she has no other profession	7	11,7
Turner	2	5,8	12-17	4	12,9	Because she couldn't find another job	8	13,3
Servant	1	2,8	18-23	14	32,3	Interest / Love For The Sea	24	40,0
Construction Foreman	1	2,8	24 -29	-	0,0	For Post Retirement	9	15,0
Worker	1	2,8	30>	8	25,8	**Total**	**60**	**100,0**
Machine Technician	1	2,8	**Total**	**35**	**100,0**			
Carpenter	1	2,8						
Plumber	1	2,8						
Total	**35**	**100,0**						

***Fishermen gave more than one answer for their preference reasons.**

As a matter of fact, a lot of fishermen had additional jobs because their income was insufficient. In the research, 54.4% of fishermen earned only fishing income, while the others had other income of different jobs (45.4%). Although the reasons for continuing the fishing profession was varied according to the every fishermen. the rate of continuing the profession due to their love for the sea was 40%, and 20% rate of those who continued the profession because it was a family profession (Table 7). In another study, the reason of being a fishermen was found father's profession (33.3%) (Şensoy, 2020).

Table 7. Health Problems and Social Security Status of the Vessel Owners

Health Problems	Number	%	Social Insurance	Number	%
Any Health Problems	24	68,6	Non-Exist	7	12,0
Rheumatism / Sciatica	5	14,3	Exist	28	80,0
Herniated disc	4	11,4	**Total**	**35**	**100,0**
Hand / arm numbness, nerve / vascular compression	2	5,7			
Facial paralysis					
Kidney disease					
Bronchitis					
Total	**35**	**-**			

In the research, it was also questioned whether the fishermen were insured or not and their occupational diseases in the study. Herniated disc, rheumatism/sciatica and hand-arm numbness, nerve compression, which were among the occupational diseases of fishermen, was determined as 31.4%. The occupational diseases of the fishermen were determined at a rate of 36% in another study (Şensoy, 2020). On the other hand, the fact that 80% of the fishermen had insurance while 20% were not another problem to be discussed.

Table 8. Membership of a fisheries cooperative and satisfaction with fisheries

Membership of a Fisheries Cooperative			Satisfaction With Fisheries		
Membership	**Preferences**	**Number**	**%**	**Number**	**%**
Member	Satisfied	20	57,4	20	60,6
Non-Member	Non-Satisfied	15	42,6	15	39,4
	Total	**35**	**100,0**	**35**	**100,0**

As in other studies, fishermen who are members of the fisheries cooperative in the region find the activities of the cooperatives inadequate (Akyol and Perçin, 2015; Zengin et al., 2018; Güngör et al., 2019). Although 60.6% of the fishermen in the region were members of the cooperative and their satisfaction rate was 57.4%. When the problem was analyzed, it was found that some fishermen (42.6%) found the cooperatives unsuccessful because they could not provide sufficient service. As a matter of fact, in a study conducted by Zengin and Güngör (2017), it was emphasized that aquaculture cooperatives were insufficient due to reasons such as not having a trained manager, not being able to provide cheap loans to their partners, and not being able to distribute dividends (Zengin and Güngör, 2017). The fishermen stated that the reason for their membership in the cooperative was that if they became a member, the procedure for hunting happened faste.

Table 9. Share Style of Fishing Income Between Vessel Owners and Crews

Share Style	Number	%
50% Vessel Owners -50 % Crews+Vessel Owners	12	34,3
60 % Vessel Owners -40 % Crews+ Vessel Owners	6	17,1
75% Vessel Owners -25% Crews	5	14,3
Unpaid Family worker	1	2,9
salaried	1	2,9
Seasonal worker	1	2,9
No crew	9	25,8
Total	**35**	**100,0**

Most of the fishermen shared their income with their crew (65.7%) in the region. Some of the fishermen paid to crews as shares, some of them paid per diem. In this study, 34.3% of the fishermen paid salaries to crew by half of the fishes caught and 17.1% of the fishermen paid 20% of the fishes caught crew (Table 10).

Table 10. Types of Fish Sales and Satisfaction with the Marketing System

Types of Fish Sales	Number	%	Satisfaction	Number	%
Cash	14	40,0	Satisfied	2	5,7
Forward Sale (Weekly,Monthly)	6	15,2	Non-Satisfied	32	91,4
Advance payment	1	2,9	No Idea	1	2,9
All of them	15	42,9	**Total**	**35**	**100,0**
Total	**35**	**100,0**			

In the region, there were those who sold their fishes in cash, as well as manufacturers who sell their products in cash or in advance. Generally, those who sold their products in cash, sold at the landing points themselves, while others sold through brokers. The common problem of all fishermen, was that they cannot sell their fishes properly due to the lack of an auction at the port, whether they sold in cash or in forward sale. Because the producer who receives advance payment from the broker has no effect on the product price (Yılmaz et al., 2014).

Conclusion and Recommendations

As a result, the problems faced by the fishermen in Akcakoca had been summarized as follows:

- *Problems related to fisher shelter* (Inadequate shelter, unprotected port against wind and storm, opennes to the black wind of the port's entrance, damages to the vessels in the port during stormy weather, absence of administrative building, lack of social facilities such as coffeehouse, lack of ice house, etc.).
- *Problems with purse seiners* (not obeying the rules by purse seiners, hunting of small fish by purse-seiners, getting too close to land by purse seiners, excessive fishing ratesof big vessels equipped with modern sonar device).
- *Unconscious hunting*, Poaching, not obeying the fishing ban by some fishermen.
- *Hunting without licences*, hunting unlicensed vessels.
- *Problems for obtaining documents* (having to go to provinces such as Zonguldak and Sakarya, thus caused alot of loss of money and time).
- When permission was given, making sand mussels.
- *Troll hunting*.
- *Environmental pollution*.
- *High rate of Special Consumer Tax*.
- *Absence of auction system*.
- *Low fish price*.
- *Lack of control* over the fihes price due to the fisherman's advance payment from the broker.
- *Inadequate government support*.
- *High costs*.
- *Ineffective Cooperative* and lack of ice house of cooperative.
- *Consensus of brokers* and marketing channels on low price levels.
- *Unapplicable laws* and prohibitions.
- Not taking into account the opinions of fishermen by lawmakers.
- *Exclucency from taxes* of unlicensed and amateur fishermen.
- Decision making according to the big fishermen.
- As a result of *lack of control*, non-implemented management decisions.
- The audit focuses only on small vessel owners.
- Narrowations of long-held ranges due to improper regulation of sonar use.
- *Unequity of controls* everywhere. so some of the fishermen prefered to land where there was little or no control.
- *Decrease in fish varieties* due to the events in the Black Sea, threats on biological diversity.
- *Significant threatments* of local fisheries because of the pollution load of the Danube River.
- Problem of *excessive increase in fishing capacity* of vessels

Suggestions

- Support for coastal fishing should be increased.
- Cooperatives should be adequately supported.
- Shelter location should be Improved.
- Appropriate changes should be done in the existing development plan in order to build the buildings of cooperative need (including the local, fish shop and cold storage).
- Large purse seiners should be Prevented from hunting in shallow waters in the areas of 3000 allocated for coastal fishing.
- An auction system place should be established.

- Sometimes, special protection areas should be established by closing some regions partially and/or completely for an efficient hunting.
- Unlicensed fishermen and amateur fishermen should be controll and include in the tax.
- The nets of the trawl bags used should be compatible with the optimum fish size to be caught with these nets.
- The introduction of an alternation systemshould be implement regional hunting bans for certain periods in certain areas where stocks are located, as in the agricultural areas.
- Sand mussel hunting should be under the control at Akçakoca coastline and prevent adversely affects to tourism.
- Sensitive areas such as breeding, growth and shelter areas should be declared as special protection areas. The principle of giving to the fishes a chance to born and breed at least once should be applied.
- The re-arrangement of purse seine fishing is necessary. The use of medium trawl should not be allowed to be used on the coasts and their depth should be limited. Unfortunately medium water trawl nets are used as bottom trawls and many deep fish except sprat are caught by medium water trawls. Control mechanism should be create and applied.

Author Contributions

Günay Keleş contributed to the analysis of the results and drafted the manuscript. Serpil Yılmaz carried out the experiment and helped to draft the manuscript.

Conflict of Interest

The authors declare that they have no competing interests.

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