



## Socio-Economic Status of Small-Scale Fishery of the Hatay Region in Northeastern Mediterranean Coast of Turkey

Mevlüt Gürlek , Burcu Atay 

Marine Sciences and Technology Faculty, Marine Science Department,  
Iskenderun Technical University, Iskenderun, Turkey

### Abstract

The aim of this study was to investigate socio-economic structure and problems of small-scale fisheries in Samandağ, Arsuz, İskenderun, Payas, and Dörtyol districts of Hatay Province, in the northeastern Mediterranean coast of Turkey. Technical and physical features of fishing equipments, socio-economic characteristics of fishermen, economic analysis of fishery activity and the problems faced by fishermen were examined. A total of 317 boats were found to be registered in the small-scale fishing activity in these regions. The data were obtained face to face from 209 fishermen who are mainly engaged in the fishing activities in the Samandağ, Arsuz, İskenderun, Payas and Dörtyol coastal areas. A total of 40 questions were asked to the fishermen. Small-scale fishery is a source of income for many people, particularly in small towns and fishing areas with low-capital investments. Small-scale fisheries also contribute to the healthy nutrition of the people of the region. Fisheries plays an important role in human protein requirements. There is an increasing need to supporting bodies or programs to get a sustainable small-scale fishery in these coastal regions. There is also a serious risk for small-scale fishermen and their families whose lives are related to fishery resources, which are getting decreased in these coastal areas.

### Keywords:

Small Scale Fisheries, Socio-economic Structure, Hatay Fishery

### Article history:

Received 12 December 2019, Accepted 24 June 2021, Available online 12 June 2021

### Introduction

Fisheries is an important area of activity in terms of both feeding the population and being one of the main livelihoods in the coastal regions. Large portions of fish and fishery products in Turkey

\* Corresponding Author: Mevlüt GÜRLEK, E-mail: mevlut.gurlek@iste.edu.tr

needs are supplied from fishing. Small-scale fishing is less profitable than industrial fishing and labor productivity is low. However, it constitutes an important part of the fishing activities both in terms of production quantity, and the number employed (Guyader et al., 2013; Paulrud et al., 2014). Especially in employment, its share in the sector is higher than its share in production. Small-scale fisheries are low productivity, but in terms of employment and socio-economic aspects of the sector has a very important place. Small-scale fishermen around the world sometimes encounter problems such as sharing fishing grounds with large-scale fishermen (FAO, 2015). Small-scale fishing contributes to the preservation and enhancement of welfare in coastal towns. In particular, it provides employment opportunities to many people with low capital investments in low labor cost areas and provides a source of income for many people with limited economic opportunities (Karakuş, 2015). Small-scale fishing, small capital, and small boats are used in the form of daily hunting activities, mostly near coastal areas. Fisheries is a sector that will contribute to the economy and employment. Small-scale fishing contributes to the maintenance and enhancement of welfare in coastal towns. Small-scale fisheries provide employment opportunities especially for those with low education levels (Erdoğan Sağlam & Karadal, 2016).

More than 300.000 families in Turkey provide their livelihood from fisheries and sub-industries. The province of Hatay has a surface area of 5524 km<sup>2</sup> and a population of 1575226. It has a total length of 186 km of coastline and has actively used Çevlik, Konacık-Işıklı, İskenderun and Dörttyol fishing ports. As of 2017, there are a total of 407 fishing vessels, 54 of which are larger than 12 m and 382 are smaller than 12 m (Hbs, 2018). Hatay has 2% of Turkey in terms of both its coastline and the number of small scale boats. In Hatay, 2072 people earn a living from the fisheries sector, and most of them are people who continue small-scale fishing activities.

Improving small-scale fisheries management is highly to the sustainability of the sector, which is the livelihood of many people. In the management of fish resources, knowing the appropriate fishing power for stocks is important not only in terms of ensuring the sustainable use of stocks, but also in terms of protecting the socioeconomic welfare of the people engaged in fishing activities. For each region, fisheries, documentation studies should be completed and activities related to fisheries and fishermen should be continued (Ünal, 2003).

In this study, it was aimed to reveal the status of small-scale fishery activities in Samandağ, Arsuz, İskenderun, Payas, and Dörttyol districts of Hatay Province.

## **Materials and Method**

The aim of this study was to investigate the problems and socio-economical structure of the fishermen living in Samandağ, Arsuz, İskenderun, Payas, and Dörttyol districts of Hatay Province. The technical and physical characteristics of fishing equipments, socioeconomic characteristics of fishermen, economical analyses of fishing activity and problems faced by fishermen were examined. The study was designed to obtain data that will help the policies to be implemented by the fishery's management, and the measures planned to be taken.

Within the scope of the study, there is a total of 317 boats registered in the small-scale fishing activity. The data used in the study were obtained as a result of closed and open-ended questions with fishermen who own the boat. The survey, containing 42 questions in total, was conducted in face to face with 209 fishermen (Table 1).

Table 1. Number of registered boats and number of fishermen surveyed by districts

Location	Samandağ	Arsuz	İskenderun	Payas	Dörtyol	Total
Number of Registered Boats	46	102	109	26	34	<b>317</b>
Number of Surveys	35	70	55	20	29	<b>209</b>
Sampling Rate (%)	76	68	50	76	85	<b>66</b>

Data obtained from the surveys were transferred to Microsoft Office Excel (2016) and analyzed.

## Results

### *Technical, physical properties of fishing equipments*

The lengths of the boats studied in Hatay vary between 4.63 m and 11.9 m (Figure 1). When the boat sizes were examined, it was seen that most boats (64%) were between 5.0 and 7.9 m. A total of 209 boats between 1 and 50 years old were studied. The highest boat age group was found to be in the 21-30 age range with a rate of 39%. It is seen that 209 boats work with 204 owned boats, 3 with lease and 2 with partner boats.

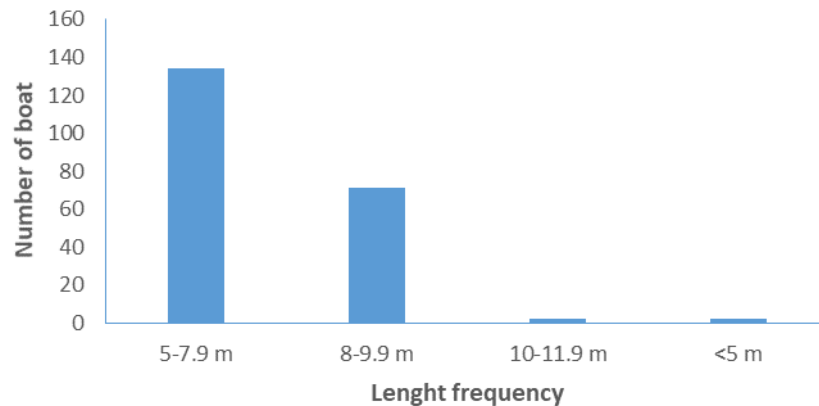


Figure 1. Length groups of boats in Hatay

The motor power of the boat varies between 4.85 kW and 104.44 kw. It is observed that the boats with 10-30 kW power are used with 46% and 30-50 kW boats are used the least (Figure 2).

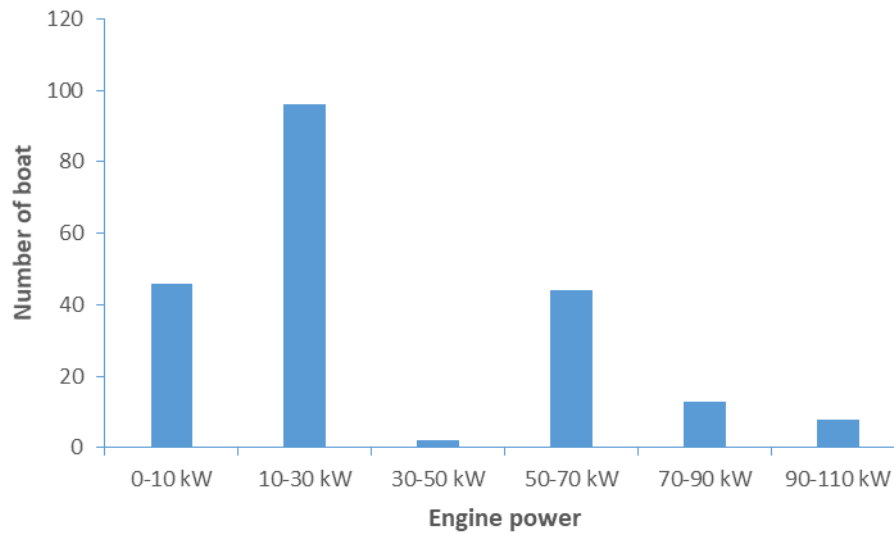


Figure 2. Engine powers of the boats in Hatay

When we look at the data obtained from the results of the survey with fishermen in the province of Hatay, the highest rate is seen with 28% of boats using longliner, trammel and gill net. The fishing equipment used in order; longliner, gill and trammel net in 58 boats, only longliner in 57 boats, only gill and trammel net in 37 boats, both longliner, trammel and gill net and fishing line in 19 boats, longliner and fishing line in 15 boats, only fishing line in 12 boats, fishing line, trammel and gill net in 9 boats, In 2 boats, it is in the form of gill and trammel net, fishing line and surrounding net (Figure 3).

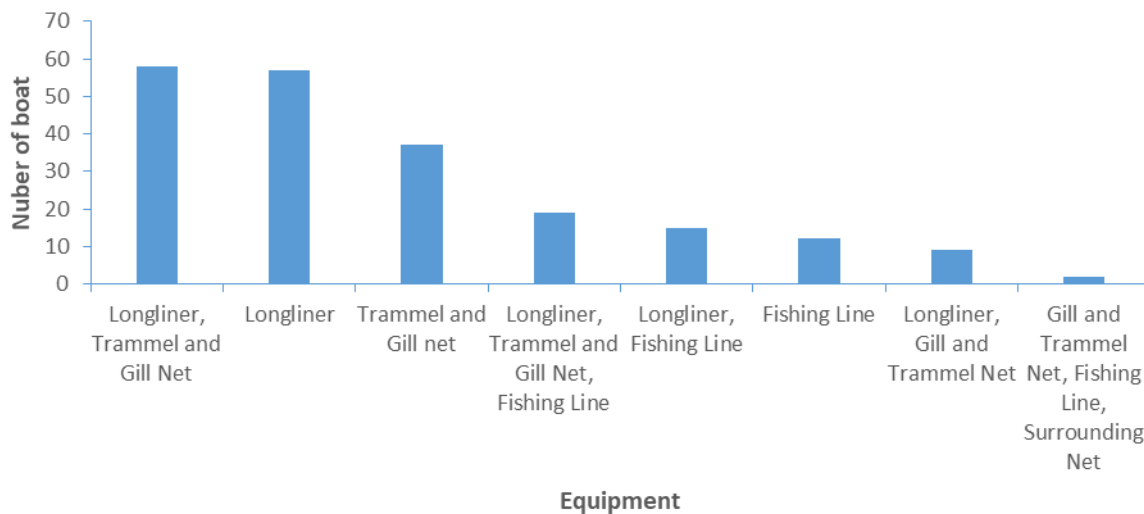


Figure 3. Distribution of fishing equipment by boats

All boats are wooden and 72% of them are produced in Hatay. Fishermen who use the extension network usually assign their nets at 18:00 and collect their nets at 6:00. Parekat hunters leave at 8:00 in the morning and collect at 10:00 in the morning.

### *Socio-economic characteristics of fishermen*

The age of the fishermen was between 24 and 78 years. When the age groups are examined, 64 people are 41-50 years old and 65 people are 51-60 years old with 3%, while 40 people are 31-40 years old with 19% and 61-70 years with 28% and 13% respectively (Figure 4).

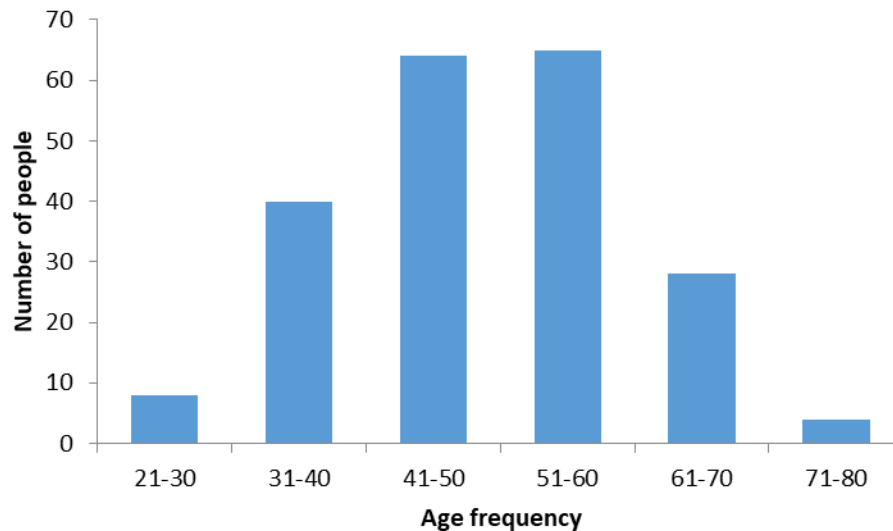


Figure 4. Age frequency distribution of fishermen

The range is 21-30 years with a 4% rate of 8 people and the lowest rate is the range of 2 to 71 years with 4%. When the marital status of the fishermen of Hatay province was examined, it was found that 185 people (89%) were married and 24 people (11%) were single. When the educational status of the fishermen surveyed in Hatay Province is examined, 134 people are primary school graduates with a rate of 64%, 34 are secondary school graduates with a rate of 16%, 27 are high school graduates with a ratio of 13%, and 4 are university graduates with a ratio of 2%. It is seen that seven people are literate with 3% and three people are illiterate with 2%. When the educational status of their wives is examined, it is seen that 74% are primary school graduates, 9% are secondary school graduates, 7% are high school graduates, 7% are literate, 3% are illiterate (Figure 5).

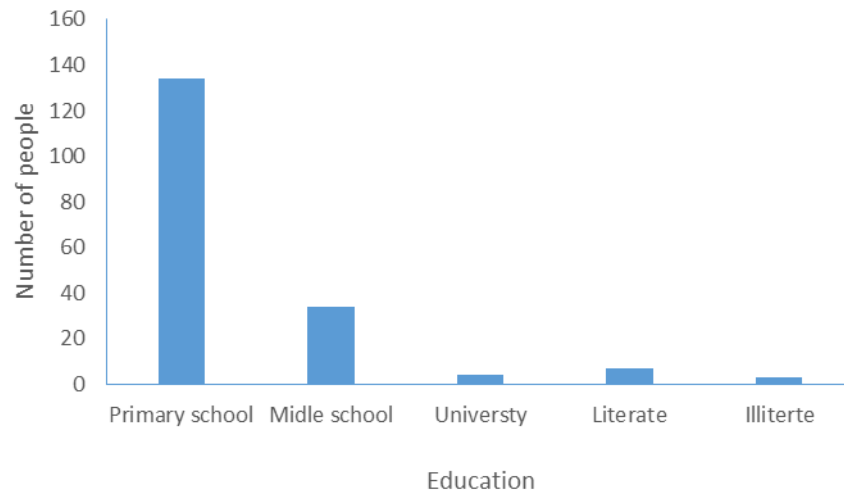


Figure 5. Education status of fishermen

115 fishermen (55%) stated that they lived only by fishing, while 94 (45%) stated that they had other income than fishing. It has been observed that 136 people are registered with the social security institution, 52 people do not have any social security and 21 people have green cards. 100 people stated that they chose fishing because of unemployment, 63 because it was a father's job, and 46 because they loved it. It is seen that their professional experience is between 2 and 60 years. 61 persons (29%) 21-30 years, 56 persons (27%) 11-20 years, 53 persons (25%) 31-40 years, 24 persons (12%) 0-10 years, 12 persons (6%) 41-50 years and 3 people (3%) have more than 50 years of experience. 70% of the fishermen stated that they live in their own houses, 24% stated that they lived in a rental, and 6% stated that they lived with their families. While 32% of 209 people stated that they own a car, 68% stated that they did not. 1% of fishermen stated that there were more than 7 people in the household, 16% stated that they lived 1-2 people, 41% lived 3-4 people and 42% stated that they lived in a household of 5-7 people. 157 of the fishermen stated that they only work in the family, 43 of them have 2 employees in their family, and 9 have more than 2 employees in their family. 59% of the fishermen owned the boat with equity, 28% by borrowing from individuals, 10% by loan and 3% by inheritance.

### ***Economic analysis of fisheries***

95% of the fishermen in Hatay stated that they go hunting once a day, and 5% twice a day. Hatay fishermen's average annual fishing time; 23% between 181-210 days, 18% between 91-120 days, 17% between 121-150 days, 16% between 151-180 days, 8% between 211-240 days, 7% were between 241-300 days and 61-90 days, 4% were between 30-60 days (Figure 6).

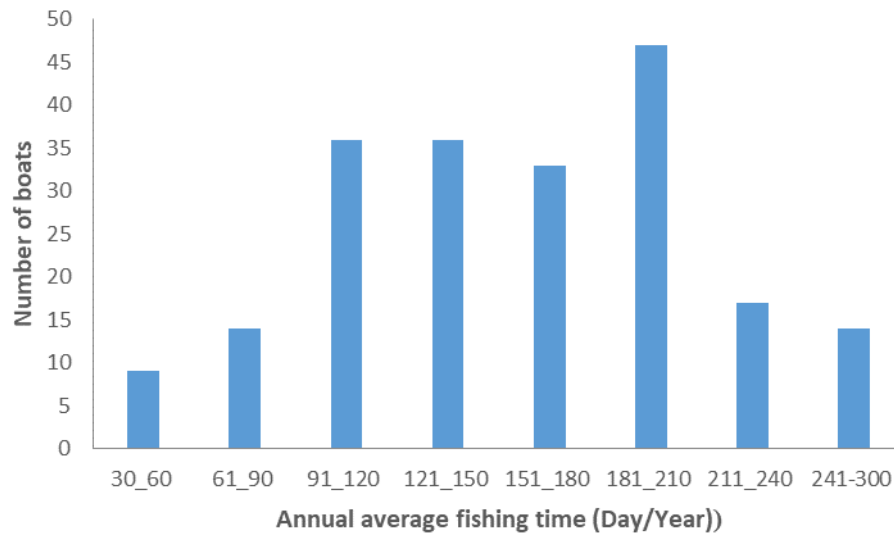


Figure 6. Average annual fishing time of fishermen

56% of the fishermen buy diesel with Ötv while 44% of them buy diesel without ÖTV. When the amount of diesel consumed by fishermen in a year is examined; 43% 1001-3000 L, 21% 501-1000 L, 17% 3001-5000 L, 9% 0-500 L, 7% 5001-8000 L and 3% 8000. It has been observed to consume more than one liter of fuel. On average, it is seen that 2800 liters of diesel is consumed for each boat. It has been determined that an average of 7000 TL is spent annually for expenses such as the purchase, repair / maintenance of fishing equipment (Figure 7).

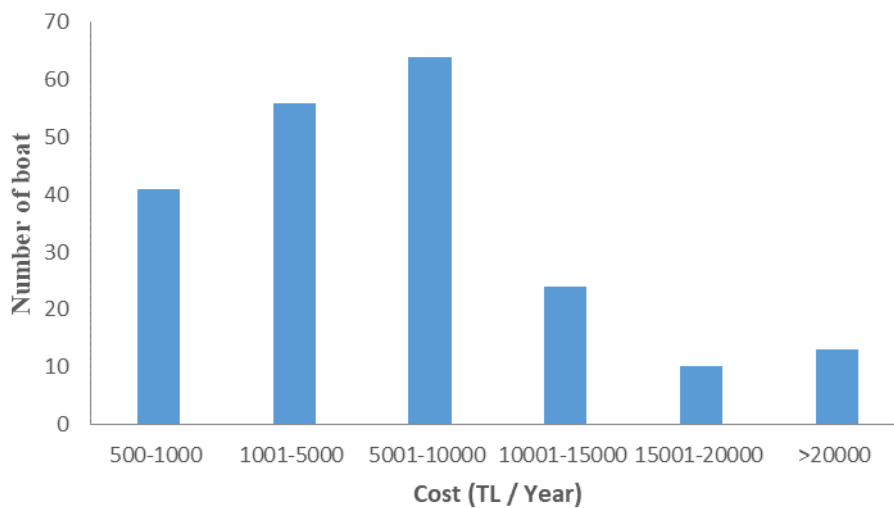


Figure 7. Fishing equipment purchase, repair / maintenance expenses

In a year, there is an average of 3000 TL maintenance and repair costs for the boat. It has made new investments between 500-15000 TL in 34 boats in a year. It was observed that 49% worked with 2 people, 25% with 3 people, 16% with 1 person, 9% with 4 people and 1% with more than 4 people. The average annual salary paid by each boat to its employees is 12000 TL. As the average amount of fish caught at a time; 44% of fishermen between 5-10 kg, 39% between 11-20

kg, 11% between 21-30 kg, 4% more than 40 kg and 2% between 31-40 kg It turned out that they fished (Figure 8).

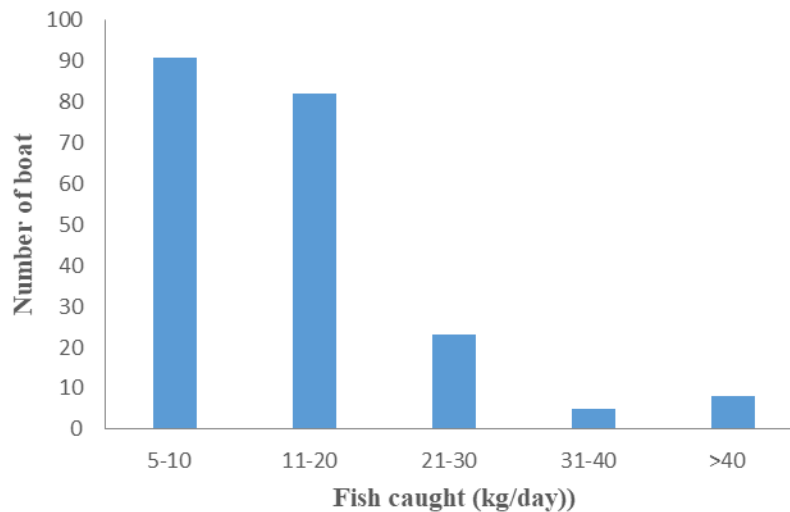


Figure 8. Average amount of fish caught at a time

Fishermen sell 85% of the fish caught to the merchant, 13% directly to the consumer and 2% to both the consumer and the trader. When the surveyed fishermen were asked how they evaluate unsold fish, 170 people (81%) said there was no unsold fish, 25 people (12%) consumed it, and 14 people (7%) distributed it. While 44% of the fishermen sell fish, it is seen that they use the criteria of Species-Length, 27% Species, 26% Species-Weight, 3% Weight. 85% of the fishermen stated that they want to continue fishing, while 15% stated that they do not want to continue. It was revealed that they could not get enough information about fisheries regulations, alien species and developing techniques. 20 fishermen stated that fishing could be banned for a few years when necessary, 76 fishermen said they wanted a ban if they saw enough support, and 113 said they would not. 110 fishermen think that fishing regulations are adequate, 99 fishermen think that they are not enough. When questioned whether they can get a loan or not, 65 fishermen stated that they could get a loan, 144 fishermen stated that they could not get a loan. When asked if you would like to combine with other fishermen and buy a bigger boat, 192 fishing boat owners stated that they did not want such a thing.

When asked about the problems faced in fishing; first, they talked about big fishing boats. They stated that trawlers and purse-seines shared their working areas and damaged fishing equipments. They alleged that trawlers and purse-seiners were in the wrong time of the fishing ban and committed fishing ground violations. In addition to the lack of fishing port in some regions, they also stated that unnecessary fees were charged from fishing port. They talked about the decrease in fish stocks, the inability to find staff to work on the boat, unconscious fishing, unstable prices, excessive fishing, marketing difficulties, storage problems, insufficient fishing organization, pollution of water resources. They stated that illegal basket hunting fishing harms the ecosystem. They mentioned that dynamite fishing in the region continued from time to time, despite the decrease in the number. They mentioned problems such as the necessity of regulating fishing bans according to the region, the opening of areas where fishing is prohibited, too many ban, and the narrowing of the hunting area. They mentioned the need for more support from the state to the



fisherman and the high prices of fuel with and without SCT. They mentioned that fish prices were very cheap due to the monopoly of the fish prices, the difficulty in finding feed as well as the expensive feed prices, economic problems such as aquaculture and the devaluation of sea fish by imported fish. In addition, they mentioned that the materials of hunting equipment are overpriced and on the contrary; consumption is low. Fishermen react, thinking that the major industrial establishments and ports in the region affect fisheries.

## Discussion

As a result of the socio-economic analysis carried out in the province of Hatay, the socio-economic structure of the region was revealed by asking 40 questionnaires to 209 fishermen in Samandağ, Arsuz, İskenderun, Payas and Dörtöyl districts who continue small-scale fishing activities in the region.

It has been observed that the lengths of the small-scale fishing vessels in the Hatay region varied between 4.63 m and 11.9 m, and the distribution of boat lengths between 5.0 and 7.9 m was the highest with 64%. Doğan (2010) stated that the lengths of small fishing boats, a partner of the Istanbul Fisheries Cooperative, varied between 6-12 meters and that the boats with a length of 6.0-7.9 meters made up the majority with 68.9%. Uzmanoğlu & Soylu (2006) stated that the lengths of boats between 6.50 and 8.00 m in Sakarya Province Karasu District with 60.72% constitute the majority. Aksoy & Koç (2012) stated that as a result of the Zonguldak Province field study, small fishing boats were approximately 6 m long. Doğan and Gönülal (2011), in their study in Çanakkale, Gökçeada, revealed that small fishing boats between 6.0-7.9 m show the highest distribution with 50%. Doğan & Gönülal (2011), in their study in Çanakkale, Gökçeada, revealed that small fishing boats between 6.0-7.9 m show the highest distribution with 50%. The study results, Dogan (2010), Uzmanoğlu & Soylu (2006), Aksoy & Koç (2012), Doğan & Gönülal (2011) shows parallelism with the situation in Turkey preferred length group reveals generally in small fishing boats. It is observed that the age of the boats in the region is not very young, they are generally around 21-30 years old and the small fishing fleet is an old one. Doğan (2010) stated that the small fishing boats of the Istanbul fisheries cooperative are mostly aged 21 and over. Doğan & Gönülal (2011) wrote in their study in Çanakkale, Gökçeada that the age of boats between the ages of 6-10 has the highest distribution with 33%. It is observed that 97% of the fishermen work with their own boats, 2% with rented boats and 1% with cooperation boats. Uzmanoğlu & Soylu (2006) concluded in their study in Karasu (Sakarya) that 18% of the boats are partners and 82% of them are their own ownership status. The construction material of all the boats of the fishermen examined in the study is wooden. When the boat building region is examined, it is 72% of Hatay. Although Black Sea boats are also preferred, it is seen that the boat building sector in Hatay is mostly used in the boats built in Hatay. In our study, we determined that various fishing equipment such as gill and trammel net, fishing line, surrounding net and longline are used in Hatay. Yağoğlu (2013) stated in the study he conducted in Akçakoca district that the fishermen were fishing with 82.2% net and 42.2% fishing with fishing line.

With the results obtained, the boats engaged in net fishing usually leave their nets in the fishing area between 17:00 and 18:00 in the afternoon and recover them after waiting for approximately 12-13 hours overnight. It is seen that the boats using the paregat team leave it in the morning hours and collect their equipment about 2 hours later.

It has been observed that the age of the fishermen is between 24 and 78 years old. Looking at the age groups, it was determined that the majority of them were the elderly population between the ages of 41-50 and 51-60 with a rate of 31%. Yücel (2006), in his study examining the socio-economic status of the Central Black Sea Region and fishermen, stated that more than half (51%) of the fishermen in the region were between the ages of 30-50. Ünal (2003) observed in the study he conducted in İzmir Foça that the age of fishermen ranged between 31-77 and on average was 46.1. As a result, it showed that the number of old fishermen is higher. Yağoğlu (2013), in his study in Akçakoca district, concluded that the fishermen were more than 40-49 years old compared to other age ranges. Erdoğan Sağlam & Karadal (2016) stated that 56% of the fishermen were between the ages of 31-50 in their study in which they examined the socio-economic structure of the Mediterranean coastline sea fishing. Erdoğan Sağlam et al. (2016) determined that the average age of fishermen was over 40 years old in their study, in which they examined the socio-economic structure of sea fishermen in the Eastern Black Sea Region. In general, it is observed that the young population does not work in fishing activities, but middle age and older people are engaged in fishing. This may be an indication of the decrease in the number of people dealing with small-scale fishing for the coming years.

Eighty-nine percent of the fishermen in Hatay are married and 11% are single.. Doğan (2010), in the socio-economic analysis of the fishing boats that are the partners of the Istanbul fisheries cooperative, found that 87.4% were married and 12.6% were single. Doğan & Gönülal (2011) stated in their study in Çanakkale, Gökçeada that 83.3% were married. Aksoy & Koç (2012) found in the Zonguldak Province field study that 22% of the fishermen were single and 78% were married. Yağoğlu (2013) stated in the study he conducted in Akçakoca that 93.3% of them were married. Considering the study results of Doğan (2010), Aksoy & Koç (2012) and Yağoğlu (2013), it was seen that most of the fishermen were married. In general, the family livelihood obligations of people dealing with fishing activities have also been revealed. When the rates of education are evaluated, it was observed that 64% primary school, 16% secondary school, 13% high school and 2% university graduates. In a study conducted in the Middle Black Sea Region, Yücel (2006) found that 66% of the fishermen did not have primary school, 15% secondary school, 18% high school, 1% university and illiterate. Güngör et al. (2007), in another study conducted in Tekirdağ province, 64.7% of the boat owners stated that they had primary school education, 22.2% secondary school, and 13.1% high school education. Yağoğlu (2013) stated in his study in Akçakoca that the fishermen were 66.7% primary school graduates, 31.1% high school graduates and 2.2% university graduates. It has been concluded that Hatay fishermen show parallelism with other regions in terms of their education levels.

When the education status of fishermen spouses is examined, it is seen that 74% are primary school graduates, 9% are secondary school graduates, 7% are high school graduates and literate, and 3% are illiterate. Yağoğlu (2013) found in his study that all fishermen wives were literate in Akçakoca district. It has been observed that the education status of fishermen spouses in Hatay is parallel with the education level of fishermen. In our study, it was determined that 115 people only fished with a rate of 55%, and 94 people had other jobs or an additional income with a pension rate of 45%. Yücel (2006) stated that more than half of the fishermen (64%) earn their livelihood only from their income from fishing, and 34% of the subjects do fishing as an additional job. Güngör et al. (2007), Erdoğan Sağlam et al. (2016) found that 38% of them earn their livelihood only from fishing, while 62% of them make a living from construction, hazelnut merchants, furniture, farming

and different trade areas. The fact that small-scale fisheries are doing additional work may be an indication that the economic return of small-scale fishing is not sufficient, or conversely, small-scale fishing is a good source of additional income. It is seen that 65% of the fishermen have social security. While 10% of them have only green cards, 25% of them do not have any social security. Erdoğan Sağlam et al. (2016) determined that 83% of them are members of social health institutions and 17% of them have no health insurance. Doğan (2010) determined that fishermen have 74.9% social security. Yücel (2006), in his study in the Central Black Sea Region, stated that 17% of them are workers, 22% of them are from Bag-Kur, 3% of them have pension funds, and 58% of them have no social security. While the Eastern Black Sea region and Istanbul Province are parallel to Hatay Province as a result of social security, they have a higher rate of social security than the Middle Black Sea region.

48% of the fishermen chose to fish because of unemployment. This is an indication that they prefer the profession out of necessity. The low level of education may also lead to restrictions in alternative job opportunities. Doğan (2010) found that 44.3% chose from unemployment, 17.3% for contributing to the family budget, 15.0% because it was a hobby and 14.4% because it was a father's profession. Erdoğan Sağlam et al. (2016) stated in the Eastern Black Sea region study that 39% of them continued their business due to their father's profession, 32% were fishing as a hobby due to sea passion, and 29% were fishing out of necessity. Yağoğlu (2013) stated in the study he conducted in Akçakoca district that fishermen prefer fisheries mostly because of unemployment with 48.9%. It is thought that the fishermen who make the profession out of necessity may create difficulties in complying with the regulations made for the purpose of transferring and preserving fish and fish stocks to the next generation.

Considering their professional experiences, the fact that they have 20-40 years of experience in general shows that the fishermen in Hatay Province are quite experienced. Erdoğan Sağlam et al. (2016) found that 21% of fishermen have been fishing for more than 40 years, 37% of them have been fishing for an average of 25 years, and individuals with a minimum of 1 year and a maximum of 75 years of fishing experience have been found. Erdoğan Sağlam & Karadal (2016) stated that 3% of the fishermen have been fishing for more than 45 years and 90% of them have been fishing for an average of 30 years, and individuals with a minimum of 1 year and a maximum of 60 years of fishing experience have been found. Yağoğlu (2013), in his study in Akçakoca district, found that the professional experience of fishermen was more than 20 years of experience. fishermen in Turkey seems to be quite experienced.

Hatay fishermen are sensitive to house ownership. Erdoğan Sağlam & Karadal (2016) found that 61% were homeowners and 39% were tenants in their research on the Mediterranean coastline. Yağoğlu (2013) found that 80% of the fishermen were homeowners in his research in Akçakoca district. The home ownership rate is 70% of the fishermen in Hatay, is indicative of the average of the Mediterranean on Turkey.

While 66 of the fishermen who participated in the survey in Hatay Province stated that they had a car, 143 of them stated that they did not have a car. Yağoğlu (2013) found in his study in Akçakoca district that 16 of the fishermen had automobiles and 29 of them did not. Doğan (2010), in his socioeconomic analysis of Istanbul fisheries cooperatives and their partners, concluded that 28 of the fishermen have automobiles and 139 of them do not have a car. This result suggests that small-scale fishing increases the living standards in smaller settlements.

When we look at the average in general, it is seen that the number of people living in the household is around 5. In the study conducted by Uzmanoğlu and Soylu (2006) in Karasu (Sakarya) district, those with 2 households are in the first place with 32.14%, and those with 5 are in the second place with 21.43%; One person and nine people are 3.57% in the last place.

It has been observed that there is an average of 180 days of fishing per year in Hatay and the fishing area are mostly between 5-15 miles. Ünal (2003), in his study, found sea working days at the level of 136 days / year / boat in Foça. Doğan (2010) stated that the fishing times in fisheries ranged from 30 to 320 days and the highest rate was 240 days with 26.3%. Yağlıoğlu (2013) draws attention in the study he conducted in Akçakoca district that the annual fishing periods of fishermen are different. In the study, it was stated that approximately half of the fishermen in Akçakoca did not fish for more than 4 months and the other half fished for more than 7 months. Only 44% of the fishermen in Hatay use diesel without SCT. They stated that the reason for this was that the paperwork required for discounted diesel purchase was laborious and the money was requested in advance. Aksoy and Koç (2012) concluded in their study in Zonguldak province that they received 88% SCT diesel. Of the 209 boats, 49% stated that 2 fishermen worked, 25% 3 fishermen, 16% 1 fisherman, 9% 4 fishermen, and 1% more than 4 fishermen. Erdoğan Sağlam and Karadal (2016), in their study examining the socio-economic structure of Mediterranean coastline sea fishing, found that there were 2-3 fishermen in 67%, more than 4 fishermen in 5%, and 1 or no fishermen in 28%.

Eighty-five percent of fishermen sell their fish to merchants. It is seen that there is no auction in the Hatay region so that the fishermen prefer to work with the trader. They stated that the reasons for working with the trader are that they can easily receive money from the trader in economically difficult situations, they do not want to take time to deal with the sale of the fish, or they do not have a customer potential of their own. Yağlıoğlu (2013) found that 93% of the fishermen sold the fish through a trader. Erdoğan Sağlam and Karadal (2016) reported that 79% of the fishermen sold the product they caught through brokers, 16% from their own boats, and 5% through cooperatives. It is parallel to the Hatay region.

Although fishermen complained about many economic and environmental conditions, they stated that they would continue fishing with a rate of 85%. The reason for this can be said to be passionate about the profession and a good source of additional income. Erdoğan Sağlam & Karadal (2016) found in the study that 44% of the fishermen did not intend to quit fishing, and 56% of them did this job out of necessity and thought to quit in the future.

It is observed that small scale fishing boats in Hatay are old, young population is less interested in fishing activities, and generally middle age and older people are engaged in fishing. This situation suggests that it may cause a decrease in the number of people dealing with small-scale fishing activity and loss of experience for the coming years. Considering the number of people working in the household in general, it is seen that those who are engaged in fishing activities cover most of the financial burden of the family.

In general, the low level of education creates constraints on alternative job opportunities, so it is seen that they prefer fishing. In general, the low level of education creates constraints on alternative job opportunities, so it is seen that they prefer fishing. The fact that fishermen have more additional sources of income can mean that the economic return of small-scale fisheries is not sufficient and / or the time left from fishing allows for additional work.

Looking at the rate of ownership, it suggests that small-scale fishing increases the living standards in smaller settlements. Small-scale fishing is a source of income for many people, especially with low capital investments in small towns and fishing zones. Fishes has an important place in meeting the need for quality protein in human consumption. The fish also contribute to the healthy nutrition of the people of the region.

It is an important for the sector to increase different support programs for small-scale fisheries.

Knowing fishing power in fisheries management is very important for the sustainability of stocks. In addition to the fisheries documentation studies, it is important that the studies on fishermen continue to increase.

The reduction in fish stocks also poses a serious risk for small-scale fishermen and their families whose lives depend on marine resources. The seas are under the threat of various factors such as pollution, habitat loss, extreme and illegal fishing, invasive species, and climate change. For this reason, we must base the continuity of stocks on sustainable foundations. For sustainability, involvement of small-scale fishermen can achieve success in fisheries management and ecosystem protection. In this context, it is recommended to organize training programs for fishermen at certain times of the year and make them more conscious. In the trainings, all kinds of bureaucratic procedures that fishermen may encounter, environmental awareness, new species and fishing regulations should be explained. Thus, it will be possible to realize sustainable fishing with the participation of small scale fishermen.

The Hatay region is particularly rich in non native species and is one of the first places where these species enter in Turkey. Some of the newly introduced alien species can affect human health as they are poisonous.

Existing support activities should also be continued in order to improve the living standards of small-scale fishermen and at the same time increase the profitability of fisheries. Supporting small-scale fishing will also ensure a balanced distribution of fishing efforts among larger fleets. In this way, they can be improved in terms of productivity and economy as well as their share in employment. Stronger fishermen should be created by informing fishermen about the importance and functioning of cooperatives.

It is important to reveal the current situation by following the developments in the sector with regular monitoring programs.

### **Acknowledgments**

This is a part of Burcu ATAY M. Sc. Thesis. This study was supported by the Nature and Science Society. We would like to thank Prof.Dr. Cemal TURAN for his contributions.

### **Conflict of interest**

The author declare that no conflict of interest.

### **Ethical approval**

For this study is ethical approval not required.

**References**

- Aksoy, R., & Koç, G. (2012). Investigation of Absenteeism and Presenteeism Attitudes of Employees: A Case Study of Zonguldak Turkey Hard Coal Enterprises. *International Journal of Economic and Administrative Studies*, 4(8), 87-103.
- Doğan, K. (2010). Socio-economical analysis of fishery co-operatives and associates in Istanbul. *Journal of Fisheries Sciences*, 4(4), 318-328.
- Doğan, K., & Gönülal, O. (2011). Fisheries of Gökçeada Island (Aegean Sea) and Socio-Economic Structure of Fishermen. *The Black Sea Journal of Science*, 2(3), 57-69.
- Erdoğan Sağlam, N., Özbek, G., & Düzgüneş, E. (2016). Socio-economic Structure of Fishermen Eastern Black Sea. *Journal of Agricultural Faculty of Gaziosmanpaşa University*, 33(3), 259-270.
- Erdoğan Sağlam, N., & Karadal, E. (2016). Socio-economic Structure of Pelagic Fishing in the Coastal Mediterranean Region. *Süleyman Demirel Üniversitesi Eğirdir Su Ürünleri Fakültesi Dergisi*, 12(2), 158-169.
- FAO. (2015). Small Scale and Artisanal Fisheries, FAO Paper. Available at: <http://www.fao.org/fishery/topic/14753/> (30.09.2018).
- Guyader, O., Berthou, P., Koutsikopoulos, C., Alba, F., Demanèche, S., Gapar, M.B., Eschbaum, R., Fahy, E., Tully, O., Reynal, L., Curtil, O., Frangoudes, K., & Maynu, F. (2013). Small scale fisheries in Europe: A comparative analysis based on a selection of case studies. *Fisheries Research*, 140:1-13.
- Güngör, G., Özen & Güngör, H. (2007). The Socio-Economic Structure of Fishery Activities and Seafood Marketing in Marmara Sea: A Case Study Along the Coastal Area of Tekirdağ Province. *Journal of Tekirdağ Agricultural Faculty*, 4(3), 311-325.
- HBS, 2018. <https://hbs.tarbil.gov.tr/> (30/09/2018).
- Karakuş (2015). Avrupa Birliği'nde Küçük Ölçekli Balıkçılığın Sosyo-Ekonomik Durumu, Yönetimi ve Türkiye İle Karşılaştırılması. AB Uzmanlık Tezi, Gıda, Tarım ve Hayvancılık Bakanlığı, Avrupa Birliği ve Dış İlişkiler Genel Müdürlüğü, Ankara, Türkiye.
- Paulrud, A., Carvalho, N., & Borrello, A. (2014). The 2014 Annual Economic Report on the EU Fishing Fleet (STECF 14-16). Luxemburg: Scientific, Technical and Economic Committee for Fisheries. Publication Office of the European Union.
- Uzmanoğlu, S., & Soylu, M. (2006). The socio-economic structures of Karasu (Sakarya) region marine fishermen. *Ege Journal of Fisheries and Aquatic Sciences*, 1(3), 515-518. (in Turkish)
- Ünal, V. (2003). Socio-economic analysis of part time small-scale fishery, Foça (Aegean Sea). *Ege Journal of Fisheries and Aquatic Sciences*, 20(1-2), 165 – 172.
- Yağlıoğlu, D. (2013). Fisheries of Akçakoca (West Black Sea) and Socio-Economic Analysis of Fishermen Abstract. *Düzce University Journal of Forest*, 9(1), 35-42.

Yücel, Ş. (2006). Middle Black sea region fishing and socioeconomic status of fishermen. *Ege Journal of Fisheries and Aquatic Sciences*, 1(3), 529-532.