



## Has the pandemic (COVID-19) affected the fishery sector in regional scale? A case study on the fishery sector in Hatay province from Turkey

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### Keywords

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### ABSTRACT

Many sectors in all around the world including fisheries have been affected from COVID-19 pandemic. The aim of this study was to evaluate the early effects of the pandemic (COVID-19) on the fishery sector that have been conducting in regional scale considering the fishery sector in Hatay province from Turkey. A series of interviews were accomplished with the peoples/firms/enterprises belonging stakeholders (fishermen, retailer, wholesaler and exporters) to question the fishing effort and trade statistics covering the first quarter of 2019 and 2020. The most negative impact of the pandemic in terms of trade (in quantity, kg) was on the exporter with 65% decrease followed by wholesalers (35%), retailers (17% for fishing products and 14% aquaculture products). It was concluded that ERP (Enterprise Resource Planning) system should be constructed by the government to cope with the problems resulting from pandemics in the fisheries sectors. In this sense, within a decentralization aspect, local cooperatives would play an important role in setting a sector-oriented ERP.

### Introduction

A new type of coronavirus (COVID-19) has been affecting the humankind in all around the world since it was first identified from China at the end of 2019. The World Health Organization (WHO) declared this outbreak as a pandemic on March 11<sup>th</sup> of 2020. After the first reported case in Turkey on March 10<sup>th</sup>, the Turkish Government has been gradually acting some implements relating the pandemic including economic supports, regulations on health systems and partial quarantine practices (Anonymous, 2020a, Anonymous, 2020b; Çobanoğlu, 2020).

Recent studies have shown that this pandemic has been affecting national and international trade, mainly tourism, food, production and transportation sectors (Acar, 2020; Açıköz and

Günay, 2020; Alpago and Oduncu Alpago, 2020; Atay, 2020; Demirbilek et al., 2020; Ibis, 2020; Zeren and Hızarcı, 2020).

FAO has been evaluated the pandemic in a larger context as global food security (FAO, 2020a; FAO, 2020b). Besides, the European Commission has set of ambitious proposals to mitigate the socio-economic impact of the coronavirus in the fishery and aquaculture sectors on 2 April 2020 (Scholaert, 2020). The fishing sector accommodates employees at different stages such as fishing operation, logistics, storage, procurement and retail trade (Can and Demirci, 2012). In this context, unpredictable changes observed from fishing operations to supply and marketing stages due to epidemic.

Iskenderun Bay is one of the most important

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fishing areas and as in part of Mediterranean Sea small-scale fisheries characterizes (Can et al., 2012; Ozyurt and Kiyaga, 2016; Demirhan et al., 2020). Hatay is the main area supporting the Iskenderun Bay's fisheries with 383 commercial vessels and 8208 fishermen (Anonymous, 2020c), and it has important capacity for inland and abroad fish trade within its local dynamics (Demirci et al., 2019a). The aim of this study was to reveal the first effects of COVID-19 pandemic on the regional fisheries sector by considering the fisheries sector dynamics of Hatay province in Turkey. That point of view would help us to understand and cope with the unexpected situations raised from the pandemic in both directions that as threats or opportunities. This study is the first attempt to understand effects of pandemic at local scale considering a motto that "think global, act locally".

## Materials and Methods

Fisheries sector has several key components in the production line including fishermen,

**Table 1.** Comparison of average daily sales of aquaculture products at retail in Hatay province by the previous month and year (kg).

Region	March 2020	February 2020	March 2019
Antakya	47.1±17.6	50.6±17.6	48.0±23.6
Iskenderun	36.2±22.4	37.1±22.4	39.8±22.6
Samandag	18.0±13.4	34.0±12.3	41.0±27.8
Total	42.9±19.9	48.9±19.9	49.9±20.6

wholesalers, retailers, and exporters. To evaluate the early effects of the pandemic quantitatively on the fisheries sector in Hatay province, a series of telephone interviews were accomplished with the stakeholders (peoples/firms/enterprises) belonging the Samandağ, Iskenderun Antakya and Dörtyol districts. In these interviews, the fishing effort statistics from fishermen (purse seiner, trawler, and small scale fishermen) and trade statistics (in quantity, kg) from the retailer, wholesaler and exporters were questioned. Data used in this study covers March-2019, February-2020 and March-2020 for fishermen, retailer and wholesaler. Export statistics cover the first quarter of 2019 and 2020. In the context

Region	March 2020	February 2020	March 2019
Antakya	56.1±35.8	57.7±17.5	58.0±27.0
Iskenderun	46.3±23.3	57.8±6.6	57.5±15.3
Samandag	35.4±14.6	49.0±13.8	55.0±14.2
Total	47.9±25.1	56.9±10.0	57.4±17.1

of this study, 33 fishermen, 4 wholesalers (all in Iskenderun), 20 retailers (6 companies in Antakya, 12 companies in Iskenderun and 2 companies in Samandağ), and all aquatic product exporters in the region were considered.

## Results and Discussion

In the evaluation of the retail fish trade in the region, the products were classified as aquaculture products and fishery products because of the presence of different dynamics (Gezmen et al., 2015). 12% decrease in the sale of aquaculture products compared to the previous month and 14% decrease the same month of the previous year were estimated. (Table 1). This decline is not considered to be important from a sectoral point of view. Affordable prices in supermarkets might be effective in this difference. Here, it is striking that the average product sales of the retailers in Antakya were the highest. This may be due to the low number of retailers.

16% decrease in the sale of fishery products (in terms of kg) compared to the previous month in the same year and 17% decrease compared to the same month of the previous year were estimated. (Table 2). Iskenderun and Samandağ were much more affected while there is almost no change in Antakya. Because these districts are on the coastline, they are more dynamic and seafood is consumed more than the other districts.

We connected to 4 wholesalers in Iskenderun district. It was observed that average daily sales of wholesale fishery trade in March 2019, February 2020 and March 2020 were 1437.5, 1400 and

**Table 2.** Comparison of average daily sales (mean ± se) of fishery products at retail in Hatay province by the previous month and year (kg).

937.5 kg in Hatay, respectively. Compared to the previous months, 33% decrease was estimated in the wholesale fishery trade in the region, and this point could be significant decrease depending on the size of companies. Stopped to transportation to metropolitan cities especially Istanbul, is the most bigger consumer, important was the decline in wholesale fishery trade. Besides, closed to the otels and restaurants weredue to the COVID-19 outbreak another important factor to this decline. In addition, continuing supply, lack of demand and proper marketing conditions may present as a reduces in the product price. we think that the decrease in this trade will be more effective in regional fisheries in the long term.

Considering the export statistics belong to the first quarter of 2019 and 2020, aquatic products in Hatay province fishery exports decreased by 65% in March 2020 (Table 3). This rate was quite high and risky for the sustainability of fisheries companies in Hatay. Export type is thought to be an important factor in changing the volume of exports in Hatay province. In general fresh chilled fish products are exported. After the COVID-19 outbreak, the supply stages of the fresh chilled products have become difficult, and the resulting gap has been processed and tried to be eliminated for frozen products.

Last, we communicated with 33 fishermen (3 purse-seiner, 7 trawler, 23 longline and seinner). It was understood that there are not fishing

**Table 3.** Comparison of average daily sales (mean  $\pm$  se) of fishery products at retail in Hatay province by the previous month and year (kg).

Month	Year		Decrease %
	2019	2020	
January	591,875.00	470,911.00	20.44
February	622,672.00	466,599.00	25.07
March	629,623.00	218,587.00	65.28

activity differences between 2020 and 2019 March. Therefore, we concluded that there was no change in COVID-19 pandemic and measures taken in terms of fishing effort in the field study in March 2020.

Daily sales/consumption decreased in April 2020 as a reslut of curfew restriction in metropolitan cities. According to 4/1 commercial fishery regulations, industrial fishery (trawl and purse seine) are banned in Turkey since 15 April (2016/35). Therefore, there has been not much negative impact on the industrial fishery in Hatay so far. However, it can be said that COVID-19 pandemic has more affected on small-scale

fishery such as trammel net and longline fishery. In addition to decrease in fish unit prices, there are also problems in the supply of feed sardines especially in longline fishery. All of the above mentioned problems are the lack of demand for the target species caught by longline.

Turkey fisheries aquaculture sector has shown steady growth within the last 30 years (Demirci et al., 2019a; Şimşek and Can, 2019). However, this sector may be negatively affected by this pandemic process. Nevertheless, considering that people need for seafood, the support given in this sector could be an opportunity for the Hatay fisheries. It may not only eliminate negative impacts of pandemic but also create an opportunity.

At all sector components, we encountered different views in the change of fish prices. To summarize, when both wholesalers and retailers were evaluated, there was generally no significant change. It was determined that there was 22.5% decrease in Groupers sales, especially in White grouper, compared to the previous month. This could be because restaurants, most demanding of groupers from retailers, have been closed owing to COVID-19 implement measures.

In this study, it was seen that the COVID-19 had important effects on the fisheries supply-demand balance in Hatay province (Figure 1). The most important negative impact in Hatay province was the significant decreases in the export demands

of seafood.

Along with COVID-19 measures in the fishery market in Hatay province, there was a decrease in the supply of fishery products in the market. Because of the outbreak, there was no restriction on commercial fishing. But there was restriction on recreational fishing activities. In this context, the rhetoric of the fisheries that many fish traders say "*Fishing was prohibited after this pandemic*" reveals illegal situtaion. Although this study was not aimed to evaluate effects of COVID-19 pandemic on recreational fishing, it was clearly seen that catches obtained by recreational fishery has used for economic (trade) purposes illegally.



**Figure 1.** Decrease ratios of fisheries trade total transaction volume in Hatay Province after COVID-19.

The studies, focused on the economic potential of recreational fishery in the region, also supports this situation (Demirci and Arslantaş, 2018; Demirci et al., 2019b; Şimşek et al., 2019).

### Conclusion

Compared to all the world, it can be said that Turkey has taken the necessary healthcare measures early against the pandemic (Demirbilek et al., 2020). But unfortunately, the same comment cannot be made for protection of the fisheries sector's economy. There have not been special support and measure for fisheries sector during this process. Turkish Fishermen, who are made a significant contribution to Turkey's economy, have faced alone with this pandemic and there have been troubles for them.

After COVID-19, in the retail fish trade, there have been getting smaller in some companies and even a temporary workplace closure. Whereas, there

were also some companies said that no significant changes have occurred or even they have urged that pandemic ecosystem has brought them new opportunities for their turnover.

The fishing industry has special challenges like compliance, perishability, catch weight, storage conditions, lot and portion control, commodity pricing, etc. and sustainability of the industry, requires a business to minimize costs, maximize margins, meet deliveries and streamline operations to run more efficiently. These issues getting much more complicated with the pandemics. Enterprise resource planning (ERP) is a process used by companies to manage and integrate the important parts of their businesses. Therefore, we believe that a kind of ERP system should be constructed by the government to cope with the problems resulting from pandemics in the fisheries sectors. In this sense, within a decentralization aspect, local cooperatives would play an important role in setting a sector-oriented ERP.

### References

- Acar, Y. (2020). The novel coronavirus (Covid-19) outbreak and impact on tourism activities. *Journal of Contemporary Tourism Research*, 4(1): 7-21. (In Turkish)
- Açıkgöz, Ö. & Günay, A. (2020). The early impact of the Covid-19 pandemic on the global and Turkish economy. *Turkish Journal of Medical Sciences*, 50(SI-1): 520-526.
- Alpago, H. & Oduncu Alpago, D. (2020). Socio-economic consequences of coronavirus. *IBAD Journal of Social Sciences*, Autumn(8): 99-114.
- Anonymous, (2020a). 65 Yaş ve üstü ile kronik rahatsızlığı olanlara sokağa çıkma yasağı Ek Genelgesi /22.03.2020. Retrieved on April 22, 2020 from <https://www.icisleri.gov.tr/65-yas-ve-ustu-ile-kronik-rahatsizligi-olanlara-sokaga-cikma-yasagi-ek-genelgesi> (In Turkish)
- Anonymous, (2020b). İçişleri Bakanlığı/Duyurular. Retrieved on April 22, 2020 from <https://www.icisleri.gov.tr/2-gun-sokaga-cikma-yasagi> (In Turkish)
- Anonymous, (2020c). Unpublished data of Ministry of Agriculture and Forestry, Republic of Turkey.
- Atay, L. (2020). COVID-19 pandemic and its effects on tourism. *Journal of Travel and Hospitality Management*, 17(1): 168-172. (In Turkish)
- Can, M. F. & Demirci, A. (2012). Fisheries Management in Turkey. *International Journal of Aquaculture*, 2(8): 48-58.
- Can, M. F., Serpin, D. & Can, M. F. (2012). The current situation of small scale fisheries in Iskenderun Bay: A case of Iskenderun, Arsuz and Konacik. *Atatürk University Journal of Veterinary Sciences*, 7(3): 167-175. (In Turkish)
- Çobanoğlu, N. (2020). Ethics of Individual, professional, social, scientific and politic is questioned by COVID-19 Pandemi. *Anatolian Clinic the Journal of Medical Sciences*, 25(Supplement 1): 36-42.
- Demirbilek, Y., Pehlivan Türk, G., Özgüler, Z. Ö. & Meşe, E. A. (2020). COVID-19 outbreak control, example of ministry of health of Turkey. *Turkish Journal of Medical Sciences*, 50(SI-1): 489-494.

- Demirci, A., Can, M. F. & Akar, Ö. (2019a). The capacity analysis of aquaculture production facilities from the Mediterranean region of Turkey. *Marine and Life Sciences*, 1(1): 32-38. (In Turkish)
- Demirci, S. & Arslantaş, E. (2018). Economic potential and environmental effects of recreational fishing activity in coast of Iskenderun Bay. *Fresenius Environmental Bulletin*, 27(12A): 9352-9356.
- Demirci, S., Akar, Ö., Demirci, A. & Şimşek, E. (2019b). The characterization of risk and problems for recreational fishing activities with made tour trips; a sample from Iskenderun Bay. *1<sup>st</sup> International Conference on Environment, Technology and Management (ICETEM) Proceedings Book*, 965-969.
- Demirhan, S. A., Alkan, A. & Şimşek, E. (2020). Artificial reef application from the Iskenderun Bay, Northeastern Mediterranean, Turkey; an experimental study. *Sakarya Journal of Science*, 24(1): 49-54.
- FAO, (2020a). Q&A: COVID-19 pandemic-impact on food and agriculture. Retrieved on April 22, 2020 from <http://www.fao.org/2019-ncov/q-and-a/impact-on-food-and-agriculture/en/>
- FAO, (2020b). *How is COVID-19 affecting the fisheries and aquaculture food systems?*. Rome. 5 pp.
- Gezmen, S., Şimşek, E. & Demirci, A. (2015). Evaluation of dynamics of fish retail trade in Iskenderun. *Journal of Aquaculture Engineering and Fisheries Research*, 1(1): 33-44. (In Turkish)
- İbiş, S. (2020). The Effect of Covid-19 Outbreak on Travel Agencies. *Saffron Journal of Culture and Tourism Research*, 3(1): 85-98.
- Özyurt, C. E. & Kiyaga, V. B. (2016). Fisheries in Iskenderun Bay: fishing gears, catching methods and their main problems. In: Turan, C., Salihoğlu, B., Özbek E. Ö., Öztürk B., Eds., *The Turkish part of the Mediterranean Sea marine biodiversity, fisheries, conservation and governance*, TUDAV, İstanbul, p. 353-365.
- Scholaert, F. (2020). Support for the fishing and aquaculture sectors in the coronavirus crisis, European Parliament Think Tank. Retrieved on April 22, 2020 from <https://www.europarl.europa.eu/thinktank/en/search.html?authors=102692>
- Şimşek E., Akar, Ö. & Şereflişan, H. (2019). The estimation of economic capacity and ecological effects of recreational fishing activities in the Iskenderun Bay. *1<sup>st</sup> International Conference on Environment, Technology and Management (ICETEM) Proceedings Book*, 970-973.
- Şimşek, E. & Can, M. F. (2019). Ege Bölgesi su ürünleri üretim tesislerinin analizi. *V. International Congress on Natural and Health Sciences (ICNHS-2019) Adana, Turkey, Proceedings Book*, 512-526. (In Turkish)
- Zeren, F. & Hızarcı, A. E. (2020). The impact of Covid-19 Coronavirus on stock markets: evidence from selected countries. *Bulletin of Accounting and Finance Reviews*, 3(1): 78-84.