

# THE IMPACT OF THE WAR IN YEMEN ON ARTISANAL FISHING OF THE RED SEA



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# The Impact of the War in Yemen on Artisanal Fishing of the Red Sea

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#### Abstract

In March 2015, the Houthis took control of Sana'a, pushing President Hadi into exile. Alarmed by these developments, Saudi Arabia, the UAE and their allies began aerial bombardment on Yemen through 'Operation Decisive Storm'. What was originally declared a short campaign, still continues three and a half years on. The devastating impact of the war extends to all sectors of Yemeni society and economy, and the fishing industry has suffered catastrophic damage. For the Yemeni national economy, fish has been a major item of export during the last decades, second only to oil and gas, with more than a million people engaged in the capture, processing and selling of fish.

This study aims to identify marked changes in the socio-economic relations of artisanal fishing in Yemen since the onset of the war. It adopts a descriptive approach based on surveys, focus groups and comparative analysis. The report concludes that collaboration, solidarity, integration and partnership characterise the socio-economic relations of artisanal fishing and the communities of fishermen in the Red Sea coastal governorates of Yemen.

#### **Foreword**

This report examines how fishing communities along the Red Sea of Yemen make a living and the difficulties they face. The world over, artisanal fishing people – usually men although in at least one Yemeni community women also go out in boats to fish – experience problems of pollution and of decline in fish and shellfish numbers, often exacerbated by industrial and illegal fishing. Those who fish along the Red Sea coast face ecological degradation as do fishing communities elsewhere. For the Yemeni national economy, fish became a major item of export during recent decades, second only to oil and gas, and ahead of coffee and fruit. Upwards of a million people were engaged in the capture, processing and selling of fish and shellfish: fishermen, their families, boat- and net-makers, processors of fish by drying, canning or freezing, traders, transporters and exporters. This brief study begins with an overview of the livelihoods and regulation of the sector drawing on a number of sources.

Beyond problems faced by fishing communities worldwide, those of Yemen's Red Sea coast suffer what many elsewhere do not: the impact of war on their lives, settlements and livelihoods. From 26 March 2015, a military coalition formally led by Saudi Arabia began aerial bombardment in Yemen. The Saudi command declared that 'Operation Decisive Storm' was going to be a short campaign. Three and a half years later, the war continues.

After an overview of the livelihoods of those who go out to fish, the report examines the impact of the ongoing war on fishing communities and the fishing sector more generally at the time of the field research. Alongside relevant reports and documents, individual interviews and focus groups were conducted in al-Hudayda (الحديدة) and Sana'a (صنعاء) and Sana'a (صنعاء) and Sana'a (العديدة). Al-Hudayda contains the most important commercial port of Yemen and a separate sizeable fishing port; the city's major fish market stands close by the sole functioning public hospital of the city. The capital city Sana'a is home to three fish markets and the central offices of the Ministry of Fish Wealth (MFW). In May of 2018, when the field research for this study was undertaken, Coalition forces were threatening to seize the city of al-Hudayda but were yet some distance from the city.

As the report details, from early in the war, fishing installations were struck by aerial bombardment, but the advance of Coalition-backed forces, largely Sudanese in the north, and in the south a combination of different Emirati-funded Yemeni forces, formally affiliated to the Hadi government based in Riyadh with a minor component of Sudanese fighters, proved slow. The forces of the defacto government in Sana'a lost the northern city of Miydi (ميدي) to the Saudi-backed forces only in January 2017. And, after securing the areas adjoining Bab al-Mandeb (باب المندب), Emirati-backed forces seized the city of al-Mokha (Mocha, المخال) the following month. It was only from the spring of 2018, however, that a major assault began on the city of al-Hudayda, the most important city in the Tihama Red Sea coastal plain.

This report was written in the shadow of that attack, but before its devastating violence was fully unleashed. By November 2018, as this report was being prepared for publication, upwards of a half a million persons had been displaced by war in the Tihama, and hunger had come to threaten up to half of the population of Yemen.

#### Introduction

#### The Fisheries Sector in Yemen

In late March 2015, the Saudi-led Coalition's 'Operation Decisive Storm' began its attack on Yemen. The social and economic impact of the war extends to all sectors, and the fishing industry has suffered catastrophic damage.

Yemen, on the southwestern coast of the Arabian Peninsula, has over 2,500 km of coast-line extending along the Red Sea, the Gulf of Aden and the Arabian Sea. The fisheries industry is one of the most productive sectors of Yemen's economy. Before the 2015 war, it ranked second in terms of Yemen's exports and contributed 2 percent of the country's gross domestic product (GDP). From this perspective, the fisheries sector represents a main source of food security, income and employment. It provides job opportunities for more than half a million individuals who in turn support 1.7 million people, forming 18 percent of the coastal communities' population of 9.4 million.<sup>1</sup>

In the Red Sea coastal area, artisanal fishing<sup>2</sup> contributes 100 percent of the total fish products; more than 7,000 artisanal fishing boats practice fishing. Of the fishermen who own boats, 97 percent own only one artisanal boat. These fishing boats support the livelihoods of almost 36,000 fishermen. In addition, a large number of people are engaged in both pre-fishing activities, for example making nets and boats, and post-fishing activities, particularly processing and marketing.<sup>3</sup>

The major challenges impeding the development of the fisheries sector before the war were an unstable political situation, poor governance that caused fish stock depletion and the destruction of fish habitats, the lack of appropriate legislation and poor infrastructure.

In addition, the fisheries sector is characterised by an absence of fish stock assessments combined with an unreliable statistical database on landings and fishing manpower. This has resulted in bad management decisions, the over-exploitation of many fish stocks and a failure to control fishing capacity.

Until the establishment of the Ministry of Fish Wealth (MFW) in 1999, developing policy for the fisheries sector was the responsibility of the Fisheries Department of the Ministry of Agriculture. Government policies in the Red Sea coastal areas have been development-oriented during the last three decades, with the aim of increasing fish production and investment in the sector.

Since 2011, Yemen has not signed new international agreements, although it could profit from interacting with international agencies to help conserve and sustain its marine resources.<sup>4</sup>

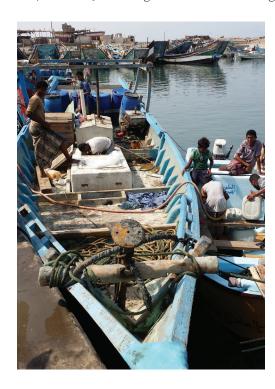
<sup>&</sup>lt;sup>1</sup> 'Guide of Fishery Investment', Ministry of Fish Wealth Issues (2017), p. 14.

<sup>&</sup>lt;sup>2</sup> Small-scale, low-technology, low-capital fishing practices undertaken by individual fishing households, as opposed to commercial companies.

<sup>&</sup>lt;sup>3</sup> 'Report of Field Survey for the Western Coast', Union of Fishermen Issues, 8–18 October 2017.

<sup>&</sup>lt;sup>4</sup> Interview with Mr Basheer Al-Khaiwani, Representative of artisanal fishing sector, MFW premises, 14 March 2018.

Various laws and regulations aim to organise and protect fish and marine life species and their ecosystem. Law no. 146 of 2006 regulates industrial fishing types, while Law no. 2 of 2006 is concerned with the exploitation of fish resources by specifying the requirements of fishing boats, coastal and industrial boats in different areas for each category of fish. Within this law, the first 5 miles off the coast are allocated to artisanal boats, coastal boats are allowed beyond 5 miles, and industrial boats only beyond 12 miles. Penalties for violations are also specified. In 2009, industrial fishing was banned in the Red Sea and Law no.76 of 2009 then legislated the model regulation for coastal fishing.





In the fisheries sector, closed seasons are implemented by officials to protect and preserve commercial species such as shrimp, rock lobster and cuttlefish. The opening and closing of seasons are regularly announced by the MFW by recommendation from the Marine Science and Biological Research Authority (MSBRA). Law no.149 of 2007 assigned many responsibilities to the MSBRA, including the opening and closing of fishing seasons, the quantity of fish and marine life species permitted to be caught and the individual catch limits. The MSBRA is supposed to conduct research and field studies to provide information on fish and marine life stock and ecosystems, but it fails do so because these require great technical and financial resources, which it lacks. Hence, officials in the MSBRA assess stocks based on information provided by various fishermen's associations and on rapid field studies of fish quantities at fish landing sites. They then estimate the quantity of fish/marine life permissible to catch and provide the MFW with their recommendation. This situation has resulted in the depletion of most of the fish/marine life species in Yemen.

Regulations regarding some valuable commercial species such as the rock lobster are in place. They specify the minimum size of lobster caught, type and quantity of gear per boat,

and ban the catching of egg-bearing lobster. Nonetheless, legislation does not regulate all species which are permitted to catch, nor does it specify areas for different fishing gear, or sensitive areas where trawling would be prohibited.

Even when legislation does exist, enforcement and compliance of Yemeni and foreign fishermen are weak because of corruption among fishery officials particularly managers, enforcement officers and monitoring personnel.

In 2010, the MFW issued the 'Yemeni Fish Guide', which lists and illustrates most fish/ marine life species found in Yemeni waters. The key fisheries resources include pelagic fishery for tuna and tuna-like species and demersal fishery for cuttlefish, shrimp and lobster. Tuna, tuna-like species and cuttlefish are prevalent in the Gulf of Aden and the Arabian Sea, whereas demersal fish are more abundant in the Red Sea. Key pelagic species include yellow fin tuna, long tail tuna, little tuna, narrow-barred Spanish mackerel, king fish, cobia, charcoal grouper, spotted shark, snapper, gold band fusilier, Indian mackerel, anchovy and shark. Key demersal fish species include crustacea and cephalopods such as the painted spiny lobster, penaeidae shrimp, cuttlefish, sea cucumber, octopus and crab.<sup>5</sup>

## The Impact of the War

News channels have reported the targeting of fishing boats, fish markets and a fishing institute along the coast of Tihama, as well as the destruction of boats and the imprisonment of fishermen by the Saudi-led Coalition.

In 2015, Yemen's fish catch in Somali waters declined to a quarter of pre-2015 catches because of a blockade of port cities by Saudi Arabia. Before the war, Yemen imported 90 percent of its food, around 70 percent of which arrived through the port of al-Hudayda. Air raids on al-Hudayda in 2015 destroyed the port's four cranes and hit its warehouses, paralysing most activities. Although, the US funded the purchase and installation by the World Food Programme (WFP) of four large replacement cranes, these did not reach Yemen until early 2018.

In addition, the conflict has had a severe impact on fishermen because of their limited access to the sea, high fuel prices for boats and generators, the disruption of fish exports and the destruction of fishing equipment. Only around 50 percent of all fishermen are still able to work because fishing has become increasingly dangerous, as Saudi and Emirati attacks have repeatedly hit fishing boats off Yemen's coast, killing dozens.<sup>8</sup>

<sup>&</sup>lt;sup>5</sup> Interview with Mrs Mariam Taher, Representative of planning and fish projects department, MFW premises, 18 March 2018.

<sup>&</sup>lt;sup>6</sup> Tim Cashion, Sarah M. Glaser, Lo Persson, Paige M. Roberts and Dirk Zeller, 'Fisheries in Somali waters: Reconstruction of domestic and foreign catches for 1950–2015', *Marine Policy* 87 (2018), p. 279.

<sup>&</sup>lt;sup>7</sup> Giulio Coppi, 'The Humanitarian Crisis in Yemen: Beyond the Man-Made Disaster', *International Peace Institute* (January 2018), p. 9.

<sup>&</sup>lt;sup>8</sup> 'Missiles and Food: Yemen's Man-Made Food Security Crisis', Oxfam Briefing Note (December 2017), p. 9.

Still, due to the severe political and humanitarian crisis, a higher proportion of the population is turning to fishing as a means to feed their families. This puts increasing pressure on living marine resources. Many important demersal and pelagic fish stocks have experienced severe overfishing. To

The UN Office for the Coordination of Humanitarian Affairs (OCHA) has also reported deliberate attacks, mostly by the Saudi-led Coalition, aimed at crippling Yemen's already decaying infrastructure and production capacity to undermine popular support for the Houthis.<sup>11</sup>

The ongoing conflict has resulted in a lack of inputs, a breakdown in markets and reduced production. Commercial farms and buildings critical to the rural sector (administration, market places, fish cooperatives and landing sites) have been damaged. The closure of the land border with Saudi Arabia devastated local farmers and fishermen involved in the export of commodities such as fish, onions, bananas and mangoes.<sup>12</sup>

According to the Food and Agriculture Organization (FAO), the conflict has significantly affected the fishing sector in terms of human and physical resources. Fishing activities and job opportunities in the fishing sector have declined with the suspension of fish exports since the start of the conflict. The Yemeni fish market and supply chain have suffered a huge loss due to the conflict and blockage of the export market to neighbouring countries and to Europe.<sup>13</sup>

While studies exist, no systematic documentation appears to be available outside Yemen of this important aspect of food production and livelihood, and the changes it has suffered during more than three years of war. This research aims to highlight the socio-economic relations that characterise non-industrial fishing and to study the impact of the ongoing war on artisanal fishing in Yemen.

<sup>&</sup>lt;sup>9</sup> Uwe Zajonz et al., 'The Coastal Fishes and Fisheries of the Socotra Archipelago, Yemen', *Marine Pollution Bulletin* (2015), p. 14. Available at: http://doi.org/10.1016/j.marpolbul.2015.11.025

<sup>&</sup>lt;sup>10</sup> Saed Shaher, 'Biology and Status of Shark Fishery in Yemen', *Indian Ocean Tuna Commission* (2018). Available at: http://www.iotc.org/documents/biology-and-status-sharks-fishery-yemen

<sup>&</sup>lt;sup>11</sup> Ben Hubbard, 'U.S. Fingerprints on Attacks Obliterating Yemen's Economy', *New York Times*, 13 November 2016. Available at: www.nytimes.com/2016/11/14/world/middleeast/yemen-saudi-bombing-houthis-hunger.html?\_r=0

<sup>&</sup>lt;sup>12</sup> 'The Private Sector Policy Note for the Republic of Yemen', World Bank Group (2016), pp. 9-12.

<sup>&</sup>lt;sup>13</sup> 'Yemen Food Security Update', Food and Agriculture Organization of the United Nations (October 2016), p. 6.

# Methodology

The study is based on collecting and analysing secondary data from published documents and reports by the MFW. Primary data was collected through semi-structured interviews, a questionnaire and focus group discussions. The researcher adopted a descriptive approach with survey and analytical dimensions. Comparative analysis was used to identify changes in the socio-economic relations of artisanal fishing in Yemen before and after the start of the war.

The samples for the study were purposively selected by the researcher based on his familiarity with the research community. Eight interviews were conducted with officials from the MFW and one with the Head of the Yemeni Union of Fishermen. For the questionnaire, the sample included 30 fishermen who live in the districts of al-Hawak (الحواك), al-Mina' (الحالى) and al-Hali (الحالى) of al-Hudayda governorate.

Finally, four focus group discussions were conducted: First, with security officials in the fishery port; second, with fishermen from the areas of al-Minthar (المنظر), al-Corniche (الكورنيش), al-Sabalia (الكورنيش), and al-Hawak in al-Hudayda governorate; third, with internally displaced fishermen from al-Qutaba (قتبة) and Hays (حيس); and fourth, with fishmongers in Amanat al-Asima Sana'a (أمانة العاصمة صنعاء).

The process of collecting the data for this study extended over March and April 2018. The survey study ran over two weeks from 29 April to 15 May 2018, during which the researcher travelled to al-Hudayda and met daily with fishermen to distribute and complete the questionnaire. During this time, he also held three focus group discussions, with security officials in the port, fishermen and internally displaced fishermen.

After completion of the data collection, the data was examined and carefully revised to remove possible errors and contradictions. The results are illustrated in the figures and tables within this report.

# Data Presentation and Analysis

## Survey with the Fishermen

#### How do you currently make a living?

All fishermen interviewed said they make their living solely from fishing. In addition, 60 percent stated that they own their boats (*jalaba* or fibreglass), while the rest work for other fishermen for a daily wage. Of those who own boats, two-thirds stated that they have sole ownership of their boats and one-third have a partner (Figure 1).

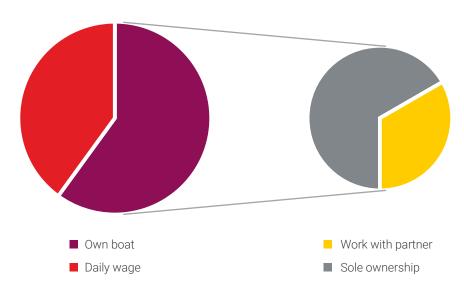


Figure 1. Ownership of Fishing Boats

#### Do you work on your boat by yourself or do you rent it to other fishermen?

Ninety percent of interviewees who own boats work on them along with other fishermen. The remaining 10 percent stated that they rent their boat to other fishermen, either dividing the fishing trip's net profit between them equally, or following a system in which the net profit is divided into shares, with the owner of the boat taking four shares and each fisherman getting one share (Figure 2).

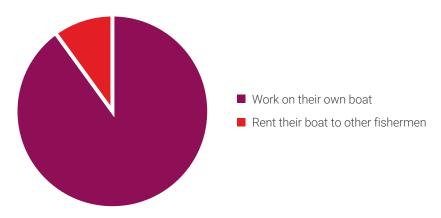


Figure 2. Fishing Operations

#### How did you learn the skills required for artisanal fishing?

The fishermen's responses show that they gained fishing skills from one of their family members or from a friend (Figure 3). As one fisherman stated: 'On each fishing trip we take one or two children between the ages of 10 and 12 with us. They must be interested in learning the fishing profession because passion is essential. They also should be accompanied by their father or a brother. First, they observe, they can then participate in all

activities starting with simple tasks to later reach more difficult ones. We also motivate them by giving them money and fish to take back to their families.'

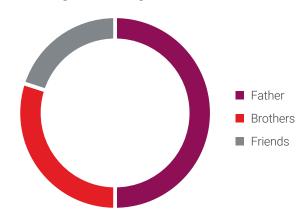


Figure 3. Ways of Learning the Fishing Profession

#### Did you learn how to fish in the place where you were born?

Most of the fishermen (70 percent) stated that they learned their fishing skills in the place where they were born, while the rest stated that they were born in one place and learned fishing in another (Figure 4).

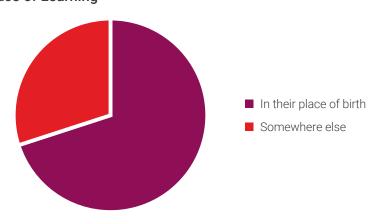


Figure 4. Place of Learning

#### Please explain how you go about your work

The fishermen explained that they usually begin their fishing trip from the port of al-Hudayda at sunset. At night, the location of the fish is easier to identity by observing their movements. They sail from 20 to 70 nautical miles in their quest for fish. For example, Yemeni fishermen who have a license to fish in Eritrean waters cross 70 nautical miles, and those who fish in the northern Yemeni islands such as Firsan (الطير), al-Tair (الطير) cross 50 to 60 miles. The number of fishermen on each trip depends on many

factors, notably the kind of fishing they are practising, the quantity of fish they are hoping to catch and the size of the boat. Generally, fishing by fishhook requires fewer men than fishing by trawling.

A small fibreglass boat called a *huri* (3–7 m long) requires two to six men on board. A wooden medium-size artisanal *jalaba* boat (7–13 m long) would require 12 to 15 fishermen for trawling, whereas it requires only four to six men to practice fishing by fishhook. Big wooden artisanal *sanbuq* boats (20–25 m long) need a crew of 10 to 25, sometimes more. A *sanbuq* can store four to five tons of fish and is accompanied by seven to ten smaller *jalaba* boats. The planned time for the fishing trip can be divided into daily, weekly (5–15 days), and monthly (25–30 days). After the captain declares that the fishing trip has ended, the fishermen return to the fishing port of al-Hudayda to sell their catch.

#### Please explain the method/ways in which you fish

There are three main methods of artisanal fishing in Yemen:<sup>14</sup>

- Trolling: pulling a baited line through the water.
- Trawling line: a long fishing line is used, with many shorter lines and hooks attached to it, usually suspended between buoys.
- Trawl net: a conical fishnet is dragged through the water at great depth.

One of the newer practices used is fishing by lights, whereby two fishing boats move towards a fishing site and one of them puts its lights on using a small power generator. These lights attract fish, giving the fishermen in the second boat the chance to surround the fish with a big net.

#### Where/how do you sell your catch?

All respondents sell their fish in the fishing port. As soon as a fisherman arrives at the port, a porter carries the fish to the auction or public sale where an expert bidder sets an initial price and buyers bid until the highest bid is reached.

# What are the most important changes that you have witnessed in the fishing profession since the start of the 2015 war?

Most fishermen explained that in the past, around ten years ago, they could find all kinds of fish as close as 5 to 7 nautical miles from shore. Nowadays, they have to sail from 20 to 30 miles in order to find a desired kind of fish. This change has happened for many reasons, namely the destruction of coral reefs, pollution, destructive fishing techniques used by artisanal Yemeni fishermen (for example using nets made of plastic with very small holes that catch everything) and by the foreign fishing boats (using explosives, suction and bottom trawling).

One fisherman stated that 'in the past, fishermen sought to create an environment for fish to grow by implanting strange objects in the sea that provide shade and dwelling for the fish, but such practices were banned by the authorities because they block navigation.'

<sup>&</sup>lt;sup>14</sup> J.W.W. Ford, A Seaman's Guide to the Rule of the Road (Wotton-Under-Edge, UK: Morgans Technical Books Ltd, 8<sup>th</sup> ed. 2009).

Several fishermen highlighted that 'small size fibreglass boats (*huri*) were traditionally used for single day trips in inshore waters. Nonetheless, due to overfishing and increases in fuel prices, fishermen now tend to go for up to ten days at sea in an attempt to catch more and get a better return.'

#### What is a fisherman's daily average income?

The fishermen's responses fell into three groups. Ten percent, those who work on fibre-glass boats, said their daily average income falls between 1,500 and 2,000 Yemeni Rial (YER), or \$5.98–7.96. Fishermen who go on longer weekly fishing trips stated that their average is 15,000-20,000 YER, which equals almost 2,000–3,000 YER a day (\$7.98–11.97). The rest stated that the net profit would be divided into shares depending on the method used in catching the fish (Figure 5). For example, using the method of net trawling, profit would be divided into two, with half going to all the fishermen on board and the other to the owner of the boat. If the trawling line method is used, the net profit will be divided into shares, with the owner of the boat taking four shares and each fisherman getting one share. Some fishing trips are also financed by an agent (wakil):

If a captain, sometimes called *al-nakhudha* (الناخوذه), isn't able to provide the financial support needed to prepare the boat (e.g. food, drink, fuel, maintenance, nets and other fishing equipment, fishermen's families' financial needs...), then an agent provides financial support in return for a share of five percent from the net profit plus expenses. If the quantity of fish caught fails to cover the expenses, or the boat breaks down, the agent could cover second trip hoping to compensate for his losses. Sometimes, Eritrean authorities expropriate the boat or the boat can be destroyed. The captain may then ask the agent for a replacement boat (badalni) and for support to prepare the new boat for a new fishing trip.

Figure 5. Daily Income of a Fisherman



#### What role do women play in the fishing profession?

Respondents stated that fishing is a man's profession and women are not involved in any activities. Some even asserted that a woman's sole role is to be a housewife and that it would be shameful to allow women to contribute towards the household income. However, half of the fishermen acknowledged that in Ra's al-'Ara (رأس العارة) district of Lahij (الحية) governorate, professional fisherwomen do exist. Likewise, they noted that in al-Luhayya (اللحية) district of al-Hudayda governorate and in Bab al-Mandeb in Ta'izz (تعز) governorate women own fishing boats. In addition, they stated that in al-Khuba (الخوبة) in al-Hudayda governorate women also work in fish preservation by drying fish.

#### What are the obstacles that you currently encounter?

All respondents stated that insecure access to fishing sites – notably the threat of being killed, injured or detained, or the boats being destroyed by the Coalition's air and marine attacks, or being expropriated by the Eritrean coastguard – constituted the most important obstacle facing Yemeni fishermen since the start of the war. According to security officials in the fishery port:

We always ask fishermen not to sail beyond 20 nautical miles. Even before the aggression on Yemen, tens of fishermen were detained and their boats are expropriated by Eritrean coastguards because they didn't have a license to fish in Eritrean waters. There are currently 202 Yemeni fishermen detained in Eritrea, with most of them doing backbreaking labour in jail. 15

The second major obstacle emphasised by 95 percent of respondents was the large successive increases in the cost of supplies (both food and non-food items), particularly fuel, which became scarce not only due to the war, but even before that following the events of the Arab Spring of 2011. Thirdly, 92 percent of respondents stressed their reduced income. The fishermen stated that before the war the average monthly income of a Yemeni fisherman was around 67,500 YER (\$269.53). As a result of the Coalition's attack on Yemen, their income decreased by 45 percent to 37,500 YER (Table 1). This is due to several reasons including the devaluation of the Yemeni Rial, which affected the price of all imported commodities.

Table 1. Average Monthly Income of Fishermen (in YER)

| Income  | Before March 2015 | After March 2015 | Difference | Percentage |
|---------|-------------------|------------------|------------|------------|
| Minimum | 35,000            | 25,000           | -10,000    | -30%       |
| Maximum | 100,000           | 50,000           | -50,000    | -50%       |
| Mean    | 67,500            | 37,500           | -30,000    | -45%       |

In addition, 60 percent of respondents stated that repeated inflation in the price of inputs for fishing (boats, engines, fishing nets, maintenance...) was a major problem. Finally, 50 percent mentioned unsafe weather conditions, particularly winds, as an important factor limiting their fishing trips (Figure 6).

<sup>&</sup>lt;sup>15</sup> Focus group discussion with security officials in the fishery port at their offices, 1 May 2018.

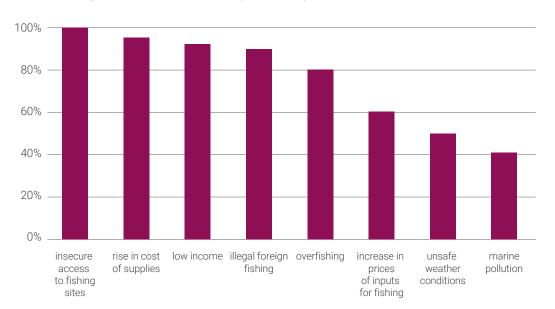


Figure 6. Major Challenges Currently Faced by Fishermen

# What are the most familiar coping mechanisms used by fishermen as a result of hardship due to the war?

In order to deal with the hardship of life due to the war, fishermen moved to different regions of the country, reduced the area of fishing activities, and some shifted to different types of activities to make a living.

# Focus Group Discussions

## Focus Group Discussion with Security Officials in the Fishery Port

Security officials at the fishery port in al-Hudayda described similar obstacles threatening Yemeni artisanal fishing and fish/marine life to those described by the fishermen themselves. In addition, they stressed that illegal foreign fishing in general uses destructive techniques, such as explosives on coral reefs and heavy weights on nets to reach the bottom of the sea in order to sweep up everything (bottom trawling). It also uses suction machines which do not distinguish between small and big fish.

Another issue is overfishing, irrespective of fishing seasons declared by the Fishing Wealth Ministry for each kind of fish, by both artisanal Yemeni fishermen and non-Yemeni fishing boats, particularly Egyptian. Finally, they stressed the effect of marine pollution, which is caused by throwing oil from fishing boats and passing ships into the sea, dumping sewage in the sea, discarding of undesired species of fish, and getting rid of old fishing nets and materials in the water.

When asked about the government's share of the fish caught, officials stated that the government's levy was reduced from 4 to 1 percent in 2015. In addition, Eritrean fishermen

pay 4 percent of their fish caught as a government share, but they do not need to get a license from Yemeni authorities. By contrast, Yemeni fishermen are required to pay a license fee to fish in Eritrean waters, which rose from \$2,000 in 2013 to \$4,000 in 2016 and \$5,000 in 2018.

## Focus Group Discussion with Fishermen<sup>16</sup>

During the discussion, fishermen highlighted the difficult conditions endured since the start of the war. Today, they stated, if a Yemeni fisherman goes beyond 20 miles out to sea, the boat will be destroyed or at best expropriated. Due to division in the country, Red Sea fishermen cannot fish in the Arabian Sea or the Gulf of Aden. In addition, the persistent threat to fishing boats and the lives of fishermen has forced fishermen to cut fishing trips by more than half.

One fisherman told the story of fishermen friends who were 'struck by an Apache helicopter on the night of 25 March 2015 while they were sleeping on al-Turfa (الطرفة) island, 10 nautical miles from al-Hudayda. They used to temporarily stay on the island during long fishing trips.' Another fisherman said that he lost 25 of his friends, while 30 others were injured in 2017 alone.

Due to financial difficulties, many fishermen have been forced to sell their own boats and to work for others for a daily wage. Some learned other handicrafts, such as boat maintenance. Fishermen also suffer from a lack of access to credit. Today, traders in the areas where fishermen reside stopped selling on credit to the fishermen's families as a result of the skyrocketing prices of commodities.

# Focus Group Discussion with Internally Displaced Fishermen from al-Qutaba and Hays<sup>17</sup>

Al-Qutaba is a village in al-Khawkha (الخوخة) district in al-Hudayda governorate. Most of its inhabitants are fishermen. Before the war, life in the village was stable. Water was available for all uses, each house having its own a well. The village also boasted a health care unit and a coeducational elementary school.

As a direct result of the Saudi-led Coalition's attack on 25 March 2015, the village has become deserted, with all its population displaced to other areas. A fisherman stated:

The first victims of the air bombardment were fishermen from al-Qutaba. A total of 152 houses were struck by the Coalition's air missiles, and more than 1,500 household members were displaced to al-Hudayda, al-Khawkha, Aden (عدن), Shuqra (المكلا) and al-Mukalla (المكلا); twenty five fishermen were

<sup>&</sup>lt;sup>16</sup> Focus group discussion with fishermen from al-Minthar, al-Corniche, al-Sabalia and al-Hawak districts, at a fisherman's house, 6 May 2018.

 $<sup>^{\</sup>mbox{\tiny 17}}$  Focus group discussion with internally displaced fishermen from al-Qutaba and Hays, at the fishery port, 8 May 2018.

killed. The fishermen from al-Qutaba fished off the islands of Zaqir (زقر) and Hanish (حنيش). Within a single night, on Zaqir island, seven zi'baq (حنيش) boats were hit by an Apache helicopter while the fishermen were sleeping and resting on the island. Those boats were destroyed and most of the fishermen were killed. In one of the boats, eight fishermen from the same family were killed (Sulaiman Jagman, his sons and his brothers). Sulaiman's injuries left him paralysed.

Internally displaced fishermen from the areas of Mahall al-Rabi' (محل الربيع) and al-Rub'a (محل الربيع) in Hays district also stated that 80 percent of Hays' population has been displaced to other areas. One of the fishermen, Walid Ukaish, was on a fishing trip when his family was displaced. He lost contact with them and until the time of this publication he was still unable to reach them.

Fishing boat prices increased by 100 to 150 percent and the price of engines increased by 200 percent. An engine which had cost 1,300,000 YER (around \$5,000) now costs 3,900,000 YER (around \$15,400).

Along with all other commodities in Yemen, the price of fish increased but nowhere close to the increase in prices of inputs and supplies needed for a fishing trip, particularly fuel.

## Focus Group Discussions with Fishmongers in Sana'a<sup>18</sup>



There are three main fish markets in Sana'a city: al-Balili (البليلي), 22 May and al-Qa'a (القاعة). In general, major fishmongers bring fish either from al-Hudayda city or from Hadhramaut (حضرموت) using their cold storage transport vehicles. In addition, fish traders from al-Hudayda bring fish using their own transport vehicles and sell their marine products in

the wholesale fish markets of Sana'a. Fish in Yemen is for domestic consumption or for export. The supply chain for domestic consumption differs from that of export. Figures 7 and 8 illustrate each.

<sup>&</sup>lt;sup>18</sup> Focus group discussions with the fishmongers in al-Balili fish market, Sana'a City, 17 April 2018.

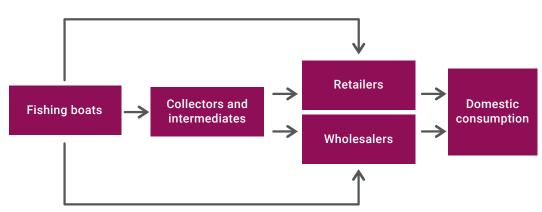
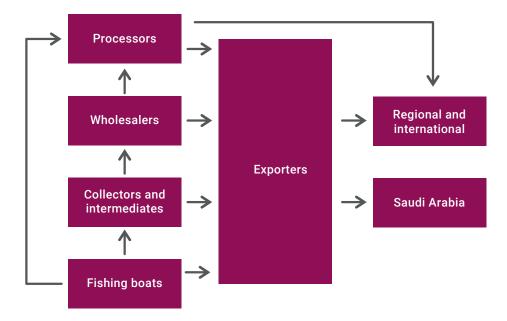


Figure 7. Domestic Consumption Actors

Figure 8. Export Consumption Actors



When discussing the challenges faced by fishmongers, most highlighted the impact of the war on employment in the fishing industry, with all individuals and companies involved affected. Most of the individuals and facilities mentioned in Figure 9 below have suffered a reduction in demand for their products and services. Moreover, many individuals lost their jobs and many facilities had to stop or interrupt their activities. For example, storage facilities suspended their activity due to power shortages and the high cost of commercial power. This has created a shortage of storage space.

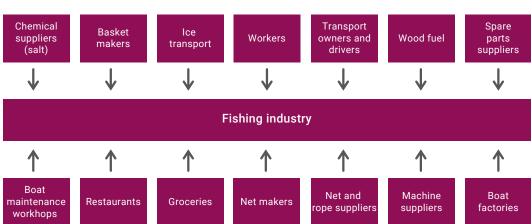


Figure 9. Individuals and Establishments in the Fishing Industry Influenced by the War

Another issue was the high increase in the cost of transportation of fish, now about 100 percent greater than before the war primarily due to the rise in fuel costs. Fishmongers also suffered from the lack of cash and credit due to the move of the Central Bank from the capital Sana'a to Aden in September 2016.

The air, land and sea siege imposed by the Saudi-led Coalition has blocked accessibility to some local markets and increased difficulty to access international markets, with the exception of Saudi Arabia through al-Wadiʻa (الوديعة) border post.

Increase in fish prices by 30 to 40 percent has caused a 50 percent decline in Yemeni households' fish consumption. For example, in al-Balili, the biggest wholesale fish market in Sana'a, the daily quantity of fish sold fell from 25 tons (before the war) to 10–12 tons today.

# Information from Interviews and Publications

The material below is drawn from an interview at the Ministry of Fish Wealth<sup>19</sup> and from damage reports published by the Ministry.<sup>20</sup> According to these sources, 146 fishermen have been killed and 57 wounded between March 2015 and the end of December 2017. In addition, 222 fishing boats have been completely destroyed. Those were valued at 1.3 billion YER (\$5.1 million) including the fishing equipment onboard.

Table 2 lists the military strikes on artisanal fishermen and their boats, showing the type of military action, its location and the losses incurred.

<sup>&</sup>lt;sup>19</sup> Interview with Mr Basheer Al-Khaiwani, Representative of the artisanal fishing sector, MFW premises, 21 March 2018.

<sup>&</sup>lt;sup>20</sup> 'Report about the Fishery Sector in the Red Sea after 1000 Days of Aggression', *Public Authority of Fishery in Red Sea*, January 2018.

Table 2. Military Strikes on Artisanal Fishermen and their Fishing Boats

| Date               | Military<br>action | Loca                   | ation       | Human               | losses               | Fishing<br>vessels |
|--------------------|--------------------|------------------------|-------------|---------------------|----------------------|--------------------|
|                    |                    | Area                   | Governorate | Fishermen<br>killed | Fishermen<br>wounded |                    |
| 25 Apr 2015        | Air strike         | al-Hayma               | al-Hudayda  | 1                   |                      |                    |
| 22 Oct 2015        | Air strike         | ʻUqban<br>island       | al-Hudayda  | 42                  | 12                   | 5                  |
| 10 Nov 2015        |                    | al-Qutaba              | al-Hudayda  | 1                   |                      |                    |
| 13-18 Nov<br>2015  | Air strike         | al-Mokha               | Taʻizz      | 24                  |                      |                    |
| 19, 21 Nov<br>2015 | Air strike         | Hanish<br>island       | al-Hudayda  | 16                  | 10                   | 2                  |
| 12,13 Dec<br>2015  | Air strike         | al-Hayma<br>port       | al-Hudayda  | 2                   |                      | 52                 |
| 27 Dec 2015        | Air strike         | al-Hayma<br>coast      | al-Hudayda  | 1                   |                      |                    |
| 11 Jan 2016        | Air strike         | Fisht island           | al-Hudayda  |                     |                      | 5                  |
| 12 Jan 2016        | Air strike         | al-Khawkha             | al-Hudayda  | 1                   |                      |                    |
| 2 Feb 2016         | Air strike         | ʻAirj                  | al-Hudayda  | 1                   |                      |                    |
| 12 Jun 2016        | Air strike         | Hanish<br>Island       | al-Hudayda  | 1                   |                      |                    |
| 13 Jul 2016        | Air strike         | al-Qutaba              | al-Hudayda  | 2                   |                      |                    |
| 7 Oct 2016         | Air strike         | al-Jasha               | al-Hudayda  |                     |                      | 6                  |
| 7 Oct 2016         | Air strike         | Marsa<br>Wahaja        | al-Hudayda  | 2                   |                      |                    |
| 1 Jan 2017         | Air strike         | al-Hayma<br>port       | al-Hudayda  | 1                   |                      |                    |
| 3 Feb 2017         | Air strike         | al-Turfa<br>island     | al-Hudayda  | 5                   | 6                    | 7                  |
| 7 Feb 2017         | Air strike         | al-Jabana              | al-Hudayda  | 2                   |                      |                    |
| 11 Feb 2017        | Air strike         | Airj village           | al-Hudayda  | 1                   |                      | 53                 |
| 12 Feb 2017        |                    | al-Shʻaib<br>island    | al-Hudayda  |                     |                      | 1                  |
| 16 Mar 2017        | Air strike         | al-Mujaylis<br>village | al-Hudayda  | 8                   | 7                    | 2                  |
| 4 Apr 2017         | Air strike         | al-Turfa<br>island     | al-Hudayda  | 4                   |                      |                    |
| 4 Apr 2017         | Air strike         | al-Sawabaʻ<br>island   | al-Hudayda  | 1                   |                      |                    |
| 4 Apr 2017         | Air strike         | Kilab island           | al-Hudayda  |                     |                      | 2                  |

| 10 Apr 2017       | Air strike | International<br>waters                         | al-Hudayda | 1 |             |          |
|-------------------|------------|---|------------|---|-------------|----------|
| 16,17 Apr<br>2017 | Air strike | 60 nautical<br>miles from<br>al-Hudayda<br>port | al-Hudayda | 3 |             |          |
| 21 Jul 2017       | Air strike | Zuqar island                                    | al-Hudayda | 5 |             | 1        |
| 24 Jul 2017       | Air strike | Zuqar island                                    | al-Hudayda | 3 |             |          |
| 2 Sep 2017        | Air strike | Ghurab<br>island                                | al-Hudayda | 1 |             |          |
| 28 Sep 2017       |            | Ziha island                                     | al-Hudayda |   | 3 kidnapped |          |
| 6 Oct 2017        |            | International<br>waters                         |            |   | 7 kidnapped |          |
| 4 Nov 2017        | Air strike | Zuqar island                                    | al-Hudayda |   |             | 1 seized |
| 7 Nov 2017        | Air strike | al-Luhayya                                      | al-Hudayda |   |             | 1        |
| 10 Nov 2017       | Air strike | al-Badayʻ<br>island                             | al-Hudayda |   | 1 missing   | 5        |
| 5 Jan 2018        | Air strike | Miydi coast                                     | Hajja      | 3 | 10          | 3        |
| 8 Jan 2018        | Air strike | al-Khuba<br>port                                | al-Hudayda | 3 | 6           |          |

Map 1 shows the wide distribution of strikes that targeted Yemeni artisanal fishermen, places of death and the places from where fishermen originate. $^{21}$ 

<sup>&</sup>lt;sup>21</sup> Ibid.

Hayran Hajja al-Zuhra Qanawis San'a' al-Mighlaf al-Duha al-Hudayda al-Hudayda Legend: al-Sukhna Border of study: Tihama al-Mansi Governorate border Durayhimi Dhamar Major cities Capital city Major harbour Death of Fisherman Zabid Place of death Place of origin Attacks on fishing boats lbb Taʻizz Taizz Saudi Arabia Oman Mawza  $\mathsf{IKm}$ 25 50 100 Data produced by the Ministry of Fish Wealth San a' Map prepared by C. Gharios and M. Mundy (2018)

Map 1. Places of Death and Origin of Fishermen and Attacks on Fishing Boats

Table 3 lists major military strikes on land-based infrastructures, showing the date, type and location of each attack. Damages to fishing infrastructure included the partial destruction of Miydi and Harad (حرف) ports and the total destruction of 11 fish offloading sites with a value of 3.3 billion YER (\$13.1 million).

Table 3. Major Military Strikes on Land-Based Infrastructure<sup>22</sup>

| Date        | Military action | Area                                  | Governorate |
|-------------|-----------------|---------------------------------------|-------------|
| 29 Mar 2015 | Air strike      | Miydi fishing port                    | Најја       |
| 24 May 2015 | Air strike      | Harad exports centre                  | Hajja       |
| 3 Jun 2015  | Air strike      | al-Faza fishing complex               | al-Hudayda  |
| 21 Jun 2015 | Air strike      | Yahiys fishing complex                | al-Hudayda  |
| 10 Nov 2015 | Air strike      | al-Khawkha fish offloading centre     | al-Hudayda  |
| 13 Nov 2015 | Air strike      | al-Mokha fish offloading centre       | Taʻizz      |
| 13 Dec 2015 | Air strike      | al-Hayma fishing port                 | al-Hudayda  |
| 14 Dec 2015 | Air strike      | Dhubab fish offloading centre         | Taʻizz      |
| 14 Dec 2015 | Air strike      | Bab al-Mandeb fish offloading centre  | Taʻizz      |
| 15 Dec 2015 | Air strike      | Yakhtil fish offloading centre        | al-Hudayda  |
| 1 May 2016  | Air strike      | Kamaran island fish offloading centre | al-Hudayda  |
| 26 Jun 2016 | Air strike      | al-Luhayya fish offloading centre     | al-Hudayda  |
| 7 Oct 2016  | Air strike      | al-Jasha fish offloading centre       | al-Hudayda  |
| 1 Feb 2017  | Air strike      | al-Nukhayla fish offloading centre    | al-Hudayda  |

Map 2 highlights the locations of the strikes targeting the infrastructure of artisanal fishing in the Red Sea coastal areas including: fishing ports, fish offloading centres, fishing complexes and fishing centres.

<sup>22</sup> Ibid.

Hayran Hajja al-Zuhra 0 al-Qanawis San'a' al-Mighlaf al-Duha al-Hudayda al-Hudayda Legend: al-Sukhna Border of study: Tihama al-Mansi Governorate border Durayhimi Dhamar Major cities Capital city Major harbour Fishery attacks Zabid Fish offloading center Fishing center Fishing complex lbb Fishing port Taʻizz Taizz Saudi Arabia Oman Mawza  $\mathsf{IKm}$ 25 50 100 Data produced by the Ministry of Fish Wealth San a' Map prepared by C. Gharios and M. Mundy (2018)

Map 2. Damages to Fishing Infrastructure

# Timeline of Targeting of the Red Sea Fishing Industry by Coalition Airstrikes according to the Yemen Data Project

Between March 2015 and the end of July 2018, the Yemen Data Project (YDP) recorded 71 strikes on fishing infrastructure, markets, boats and fishermen's housing. <sup>23</sup> Clearly, the YDP reporting of strikes is better for targets on land than at sea. Yet, some patterns emerge that can be related to the wider strategies used during the war. <sup>24</sup> During the first largely military phase, strikes were recorded on Miydi fishing port in March 2015, but none thereafter until August. It is from September 2015 – with the shift to civilian and productive targets – through to February 2016 that recorded targeting of fishing infrastructure, fishing boats and fish markets average at over five a month. The period of ceasefire negotiations in the spring of 2016 appears respected. Targeting of the fishing sector resumed in July 2016 and was recorded thereafter in most months of 2016 and throughout 2017 (6 incidents were recorded in both October 2016 and February 2017). During 2018, according to the YDP records, there is little such targeting, although the researcher himself photographed a fisherman who had died from gunfire. It should be noted that the YDP data covers aerial bombing and not fire from ships and Apache helicopters, the latter two being important in attacks at sea on artisanal fishing boats.

# Overview of Damages to the Red Sea Fishing Industry according to the Ministry of Fish Wealth

Naturally, reports by the MFW in Sana'a highlighted similar concerns to those shared by fishermen, port security officials and fishmongers during interviews. Reports show that 4,586 fishing boats have stopped their fishing trips as a result of the targeting of landing sites or because these sites are located in war zones, particularly in the district of Miydi in Hajja (حجة) governorate and the districts of Dhubab (ججة), Bab al-Mandeb and al-Mokha in Ta'izz governorate.

Unlicensed overfishing under the protection of Coalition military boats has caused financial losses as well as marine environmental damage. Financial losses of over 2 billion YER (\$8 million) were also recorded due to the stoppage of work in many related fishing industries in the Red Sea such as ice factories, fish processing and exporting companies, boat maintenance workshops, spare parts suppliers and fish transporting vehicles, with 36,688 fishermen losing their source of income. In total, 50 factories, ice plants, workshops and processing plants stopped their activities as a result of the decline in fish production.

Suspending the implementation of fish-related projects in the Red Sea resulted in a total loss of 203 billion YER (\$811 million). The MFW itself has lost fishing and associated revenues of 10.6 billion YER (\$42.4 million). 96 Ministry employees (full-time and on daily contracts) and 18,652 persons working in supportive activities lost their jobs.

<sup>&</sup>lt;sup>23</sup> Yemen Data Project. Available at: www.yemendataproject.org

<sup>&</sup>lt;sup>24</sup> Martha Mundy, 'The Strategies of the Coalition in the Yemen War: Aerial Bombardment and Food War', *The World Peace Foundation* (2018). Available at: https://sites.tufts.edu/wpf/files/2018/10/Strategies-of-Coalition-in-Yemen-War.pdf

The living conditions of 2.5 million people who reside in coastal villages and cities by the Red Sea have been directly and negatively affected by the war. Direct air and sea strikes on fishing villages caused mass displacement of fishermen and their families and had a catastrophic impact on their living conditions, especially because fishermen are among the poorest of society.

Due to the lack of monitoring and law enforcement, many violations were recorded within the fishing industry, such as the fishing of fish/marine species during their reproduction time; fishing for creatures that fish feed on; using illegal fishing practices like bottom trawling, the use of light and sound effects, the use of dynamite and the use of guns to fish certain kinds of fish, particularly coral reef fish; the destruction of fish feeding areas; fishing in nature reserves and shallow areas which are classified as feeding and reproduction sites; and over-exploitation of some fishing sites.

Military ships throwing down their anchors also contributed towards the destruction of fish habitats. Oil pollution was caused by commercial and military ships discarding oil and other remains in the sea which may contain radiant or chemical materials, while the discarding of large quantities of small and juvenile fish causes an increase in the percentage of CO2 gas, killing fish or forcing them to migrate to other areas.<sup>25</sup>

Further Statistics Showing the Impact of the War on Fishermen and Artisanal Fishing<sup>26</sup>

Table 4. Number of Fishermen (F) and Boats (B) in the Red Sea Coastal Area<sup>27</sup>

| Governorate | 20     | 13    | 20     | 14     | 20     | 15     | 20     | 16     |  |
|-------------|--------|-------|--------|--------|--------|--------|--------|--------|--|
|             | F      | В     | F      | В      | F      | В      | F      | В      |  |
| al-Hudayda  | 35,318 | 7,112 | 67,310 | 14,811 | 67,310 | 14,811 | 67,310 | 14,811 |  |
| Taʻizz      | 3,928  | 1,146 | 8,960  | 1,745  | 0      | 0      | 0      | 0      |  |
| Hajja       | 1,950  | 430   | 2,179  | 263    | 0      | 0      | 0      | 0      |  |

<sup>&</sup>lt;sup>25</sup> 'Report about the Fishery Sector in the Red Sea after 1000 Days of Aggression'.

<sup>&</sup>lt;sup>26</sup> Interview with Mrs Mariam Tahir, Representative of planning and fish projects department, MFW premises, 17 March 2018.

<sup>&</sup>lt;sup>27</sup> Data for Ta'izz and Hajja governorates after 2015 is missing because the Yemeni Ministry of Fish Wealth has no access to these areas because they are under the military occupation of the United Arab Emirates (UAE).

70,000 60,000 50,000 40,000 al-Hudayda Ta`izz 30,000 20,000 Hajja 10,000 0 В В В 2013 2014 2015 2016

Figure 10. Number of Fishermen (F) and Boats (B) in the Red Sea Coastal Areas

Table 5. Quantity (ton) and Value (YER) of Fish Production in the Red Sea Coastal Areas<sup>28</sup>

|   | al-Hudayda      | Taʻizz  | Најја   |
|---|-----------------|---|---|
| Q | 29,962          | 4,166   | 5,763   |
| V | 11,352,022      | 2,893,300   | 2,476,036   |
| Q | 23,495          | 3,323   | 5,365   |
| V | 10,205,381      | 2,601,055   | 2,225,937   |
| Q | 12,492          | 0   | 0   |
| V | 5,841,235       | 0   | 0   |
| Q | 21,197          | 0   | 0   |
| V | 13,086,207      | 0   | 0   |
|   | V Q V Q V Q Q V | Q 29,962<br>V 11,352,022<br>Q 23,495<br>V 10,205,381<br>Q 12,492<br>V 5,841,235<br>Q 21,197 | Q 29,962 4,166   V 11,352,022 2,893,300   Q 23,495 3,323   V 10,205,381 2,601,055   Q 12,492 0   V 5,841,235 0   Q 21,197 0 |

Table 5 shows that the ongoing war and blockade caused great decline in the quantity and value of fish production in the Red Sea coastal areas when compared to 2013 and 2014. In particular, the coastal areas of Taʻizz and Hajja governorates became war zones, which caused the displacement of most fishermen (3,500 fishermen were displaced from Harad district in Hajja governorate, and 4,000 others were displaced from Dhubab and Bab al-Mandeb districts in Taʻizz governorate).<sup>29</sup> However, according to a January 2018 report of the MFW, Egyptian boats, and those of other countries involved in the Saudi-led Coalition, have been fishing in the coastal areas of Taʻizz and Hajja governorates, but none go through the calculations of the MFW in Sanaʻa.

<sup>&</sup>lt;sup>28</sup> 'Quantity and Value of Production of Fish 2013–16', Ministry of Fish Wealth, Department of Planning and Fish Projects.

<sup>&</sup>lt;sup>29</sup> 'Report about the Fishery Sector in the Red Sea after 1000 Days of Aggression'.

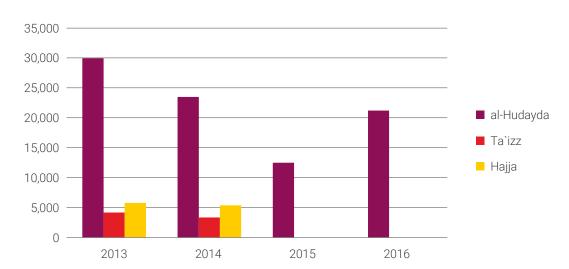


Figure 11. Quantity of Fish Production in the Red Sea Coastal Areas (in tons)

Figure 12. Value of Production of Fish in the Red Sea Coastal Areas (YER)

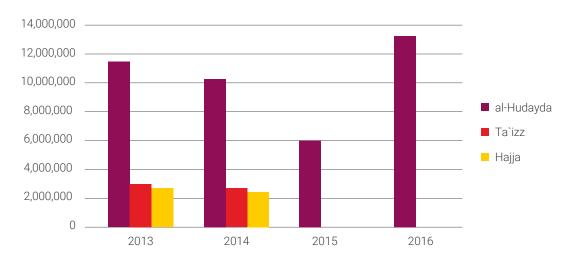


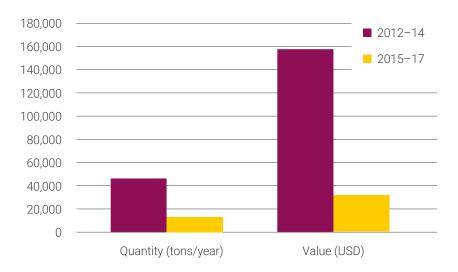
Table 6. Means of Export Quantities (tons/year) and Value (USD) in the Red Sea Coastal Areas<sup>30</sup>

| 2012-14  |         | 2015     | 5–17   |  |
|----------|---------|----------|--------|--|
| Quantity | Value   | Quantity | Value  |  |
| 46,300   | 157,623 | 13,146   | 31,295 |  |

 $<sup>^{30}</sup>$  'Average Export Quantities and Prices from Red Sea Governorates, 2012 to 2014 Compared with 2015 to 2017', Ministry of Fish Wealth, Department of Planning and Fish Projects.

Table 6 shows a great decline with regards to the quantity and value of fish exports in the Red Sea coastal areas from 2015 to 2017 compared to fish exports in 2012–14.

Figure 13. Average Export Quantity (tons/year) and Value (USD) before and after 2015



To address the impact of war on processors, we will consider employment, the quantity of processed fish and the value of processed fish in two fish processing companies.

Figure 14. Number of Workers in Two Fish Processing Companies before and after 2015

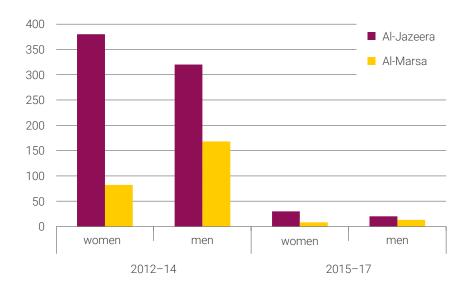


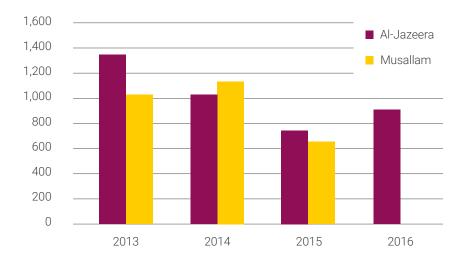
Figure 14 shows that the ongoing war has caused great decline in the number of employees in both fish processing companies. At al-Jazeera the number of female and male workers dropped to 8% and 7% respectively, and at al-Marsa the average number of female and male workers dropped to 10% and 8% respectively, compared to before the war. This means that 879 workers in total (or 92.5%) have lost their household's source of income. If we apply this percentage to the fish processing industry more widely, we can better understand the catastrophic economic impact the war has had on workers.

Table 7. Quantity of Processed Fish Products (Exports in tons)<sup>31</sup>

| Company    | 2013  | 2014  | 2015 | 2016 | Total |
|------------|-------|-------|------|------|-------|
| Al-Jazeera | 1,350 | 1,030 | 750  | 920  | 4,050 |
| Musallam   | 1,025 | 1,125 | 650  | 0    | 2,800 |

Table 7 shows that the quantity of processed fish declined by 25–50 percent, while table 8 displays that the value of processed fish declined by 35–40 percent. Both tables highlight that some companies were even forced to suspend or stop their activity entirely. According to the Yemen Data Project, the Musallam Company building in al-Luhayya was struck by the Coalition on 13 April 2018, after the time covered by the Ministry reports.

Figure 15. Quantity of Exported Fish Products from Yemen Red Sea by two Processing Companies (in tons)

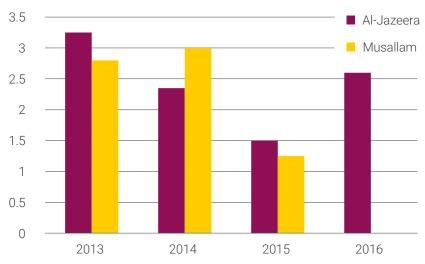


 $<sup>^{31}</sup>$  'Impact of the March 2015 War on Quantities of Processed Fish Products', Ministry of Fish Wealth, Department of Planning and Fish Projects.

Table 8. Value of Exported Fish Products from Red Sea Coastal Areas (in million USD)

| Company    | 2013 | 2014 | 2015 | 2016 | Total |
|------------|------|------|------|------|-------|
| Al-Jazeera | 3.25 | 2.35 | 1.5  | 2.6  | 9.7   |
| Musallam   | 2.8  | 3    | 1.25 | 0    | 7.05  |

Figure 16. Value of Exported Fish Products in Red Sea Coastal Areas (in million USD)



## Conclusion

Collaboration, solidarity, integration and partnership are the socio-economic relations that characterise artisanal fishing operations and fishing communities in the Red Sea coastal governorates of Yemen. The captain makes the sailing decision after consulting his crew, after which he provides them with their household expenditures to cover the fishing trip in advance. The role of the agent, or *wakil*, is to provide financial support for the fishing trip in case the boat owner and/or the captain are unable to do so. Each fishing boat has a permanent crew, who may work together for months or years. The distribution of the fishing trip's profit is usually according to shares. Retailers in the fishing community the fishermen's households with food and non-food commodities on credit while they are at sea and until their fishing trips make a profit.

Saudi-led Coalition strikes from March 2015 to December 2017 caused the death of 146 fishermen and the wounding of 57; they also led to the destruction of 222 fishing boats and equipment. The war has caused a major decline in the quantity and value of fish production, with fisheries production completely collapsing in the Taʻizz and Hajja governorates. Against this background, this report shows that damages from the ongoing war

on the artisanal fishing sector have had a large impact on fishermen, fishing inputs, marine ecosystems, infrastructure, all parts of fishing operations, all stakeholders involved in fish processing and marketing and the development of the fishing sector. In the Red Sea coastal area, where artisanal fishing contributed 100 percent of the total fish products, the impact of the war on artisanal fishing is devastating to the entire human population, and to the area's fauna and flora.

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#### **Images**

All images used in the report were taken by the author in April–May 2018 at the al-Hudayda fishery port. © Ammar Mohammed Al-Fareh, 2018.

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