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COVID-19 impacts and adaptation in aquatic food supply chains in Myanmar

One year into the pandemic

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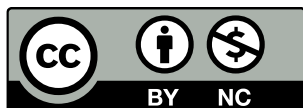
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1. Overview

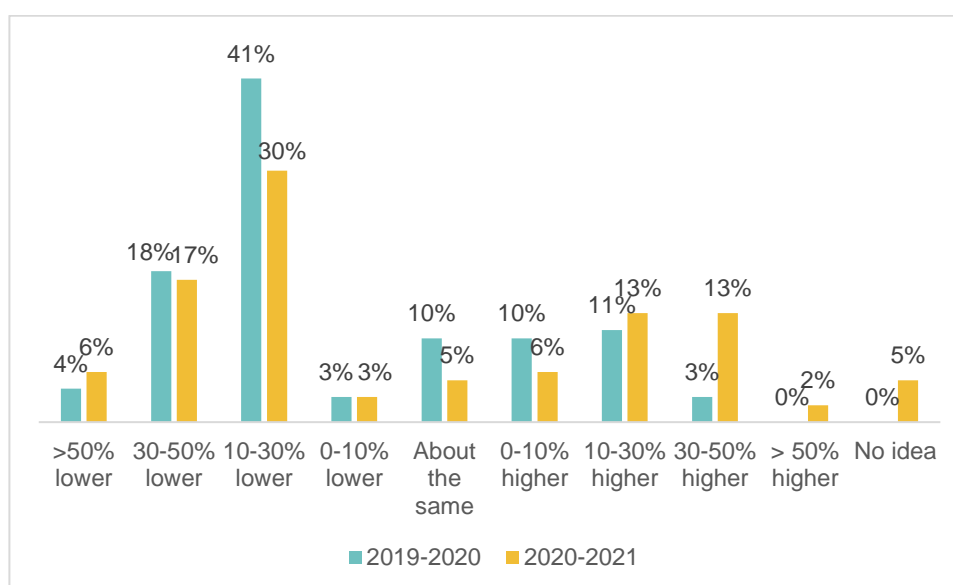
In 2020, we conducted a bi-weekly phone survey with 143 fish supply chain actors in Myanmar to assess impacts of COVID-19 on the availability and price of aquatic foods and production inputs. In 2021, we conducted a follow-up survey and re-surveyed 105 participants regarding their activity between the months of March and May. The sample comprised of the following: feed mills (2), feed sellers (pellet) (5), feed sellers (non-pellet) (1), fish hatcheries (10), fish farmers (30), fishers (25), fish processors (6), traders (11), and retailers (15).

The first reported case of COVID-19 in Myanmar was in March 2020, followed by a lockdown “stay at home” strategy was adopted in April through July 2020. The data in 2020 was collected during this first lockdown. A surge in cases resulted in another lockdown in September through April 2021. Data in 2021 was collected at the end of this long lockdown period. A second wave of COVID peaked in July 2021, attributed to the Delta variant. This approach allowed for a comparative assessment of the impacts experienced by businesses and adaptations they made in response, one year on from the beginning of the COVID-19 pandemic.

2. Key findings

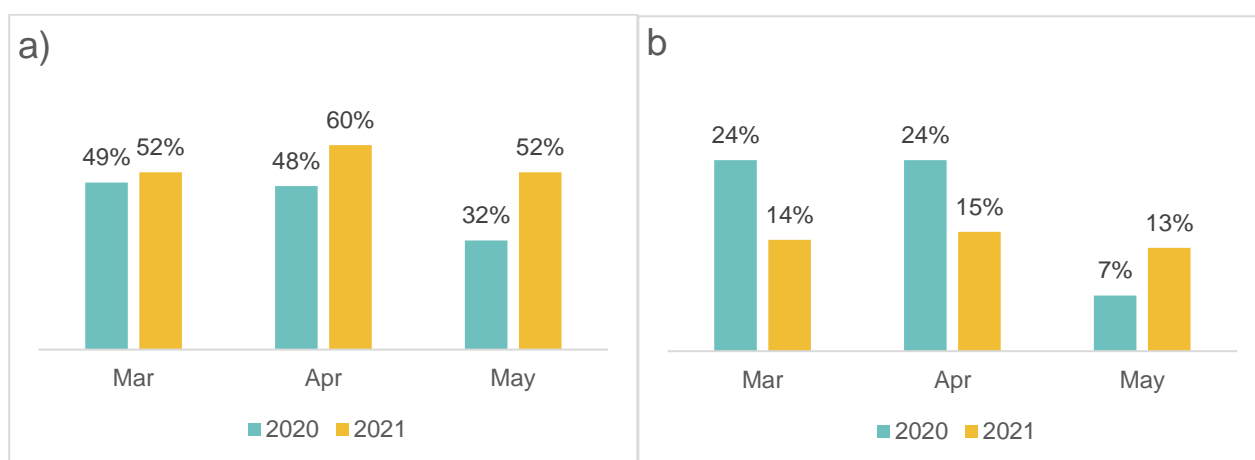
In 2021, 92% of the respondents were operational.. In 2020, the majority of the respondents reported a decrease in sales (66%) (Figure1). Even though most of the respondents also predicted a decline from 2020 to 2021 (56%), the number of respondents who predicted sales 30-50% higher increased from 3% in the previous period to 13% in the new period. A small portion of respondents even anticipate sales higher than 50%, reflecting increased optimism for 2021.

Figure 1 Change in value of sales from 2019 to 2020 (actual reported) and from 2020 to 2021 (anticipated)



The share of respondents who hired male labour slightly increased from 2020 to 2021 (Figure 2a). Contrary to male labour, fewer respondents hired female daily labour in March and April in 2021, 14% and 15% respectively, compared to 24% for both months in 2020. In May this pattern reversed, and more respondents hired female labour in 2021 (13% in 2021 and 7% in 2020). The percentage of respondents hiring male or female labor decreased between March and May 2020, likely a result of the imposed lockdown implemented in April 2020. This trend impacted on hired female labour more, and rates of hiring female labour did not recover in 2021, unlike that for males. Female labor wage rates were higher in 2021 than in 2020 (USD 7.32 and 5.26 per day, respectively), whereas wage rates for men were lower in 2021 than for 2020 (USD 4.99 and 5.53 per day, respectively). Higher wage rates and lower employment for women may indicate a reduction in the female workforce, where women’s ability to work may have been affected by lockdown dynamics, such that they may have been unable to work due to increased household duties and/or childcare.

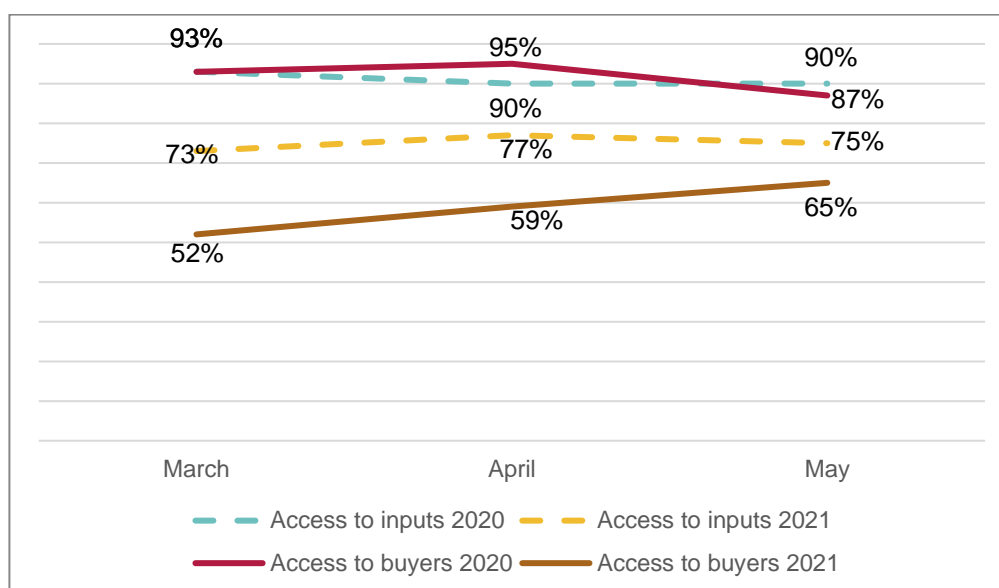
Figure 2 Percentage of respondents hiring male (a) and female (b) for daily labour.



The share of respondents who bought inputs was stable between 2020 and 2021 (average 50% and 53%, respectively). Generally, in 2020 more respondents were able to access inputs (Figure 3). In 2020, on average 93% of the respondents were able to access inputs over the three months, however, this number decreased to an average of 75% in 2021, possibly a result of antecedent lockdowns. Most respondents (on average, 95%) were able to access transport to buy inputs 2021. In 2020, the number slowly decreased from 95% in March to 84% in May.

The percentage of respondents who were able to find buyers was lower in 2021 compared to the previous year. In 2021, 52% of the respondents were able to find buyers in March, which steadily increased to 65% in May. In comparison, an average of 92% was able to find buyers in 2020. The percentage of respondents able to access transport to sell products did not differ between the two years and was very high (on average 97%).

Figure 3 Percentage of respondents able to access inputs and buyers in 2020 and 2021.



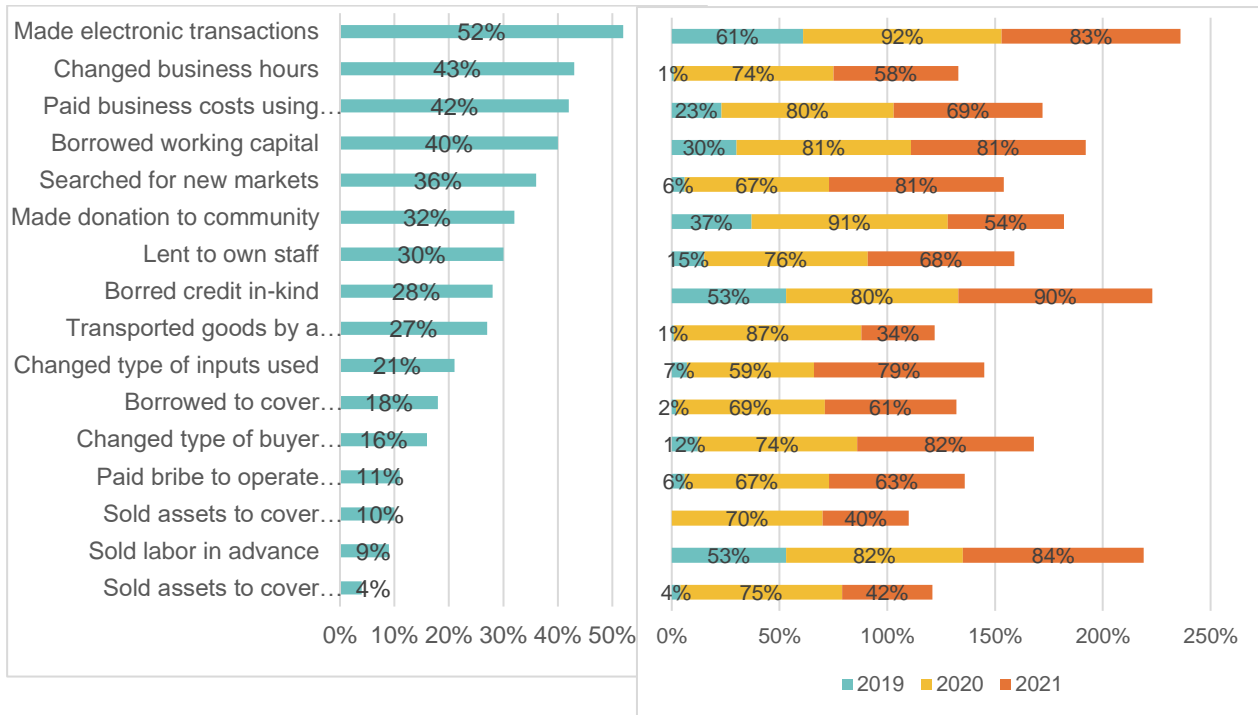
The participants were also asked about the use of online platforms to sell their products. In March 2020, 16% of the respondents sold their products online, 18% in April, and 10% in May. These numbers were considerably lower in 2021, with 2% in March, 5% in April, and 2% in May, indicating that online platforms were used less as soon as other selling opportunities opened up again.

The respondents with sufficient weekly income decreased from 80% in May 2020 to 46% in May 2021. In 2020, 65% of respondents purchased the usual amount of food, which decreased to an average of 50% in 2021. An average of 46% of respondents reported purchasing less food than normal in 2021, compared to only 34% in 2020.

3. Business adaptations to COVID-19

Many respondents changed their behaviour and/or adapted to the specific circumstances of the COVID-19 pandemic (Figure 5). Overall, 47% of the respondents changed from cash to electronic transactions, more so in 2020 and to a lesser extent in 2021, indicating a return to the pre-COVID behaviour. Moreover, 32% of the respondents paid business costs using their savings, which increased from 38% in 2019 to 76% in 2020 and 85% in 2021. Hardly any respondents were forced to sell assets to cover business and household costs, 9% and 3% respectively. This indicates that respondents had enough financial capital to withstand the impacts of COVID, the financial impacts are on-going despite some returning to pre-pandemic behaviors.

Figure 4 Percentage of respondents who have shown the respective behaviours in the past three years (2019-2021).



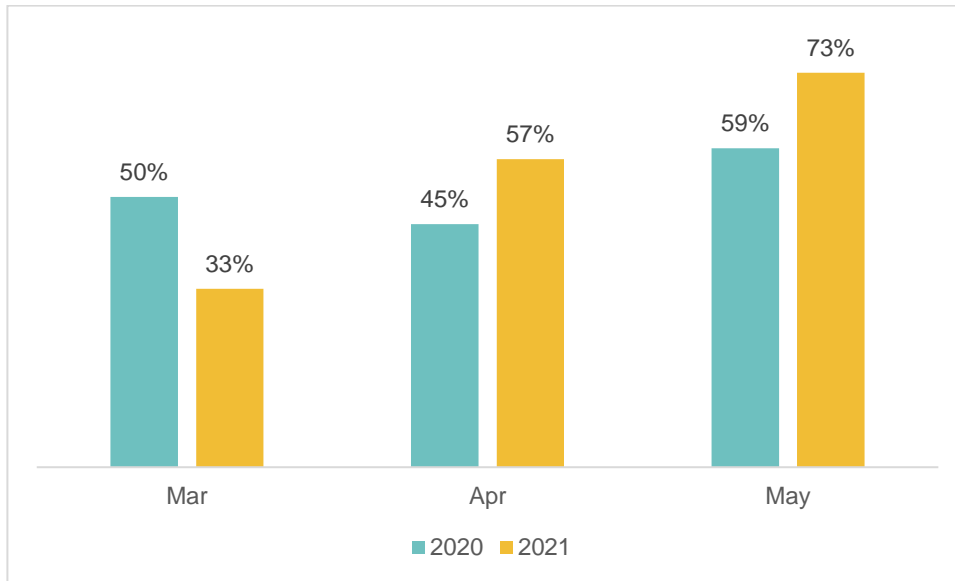
4. Impacts by value chain segment

The following subsections detail changes in business operation occurring from March through May 2020 and March through May 2021, for surveyed businesses in seven segments of the aquatic food supply chain in Myanmar.

4.1 Fish farmers

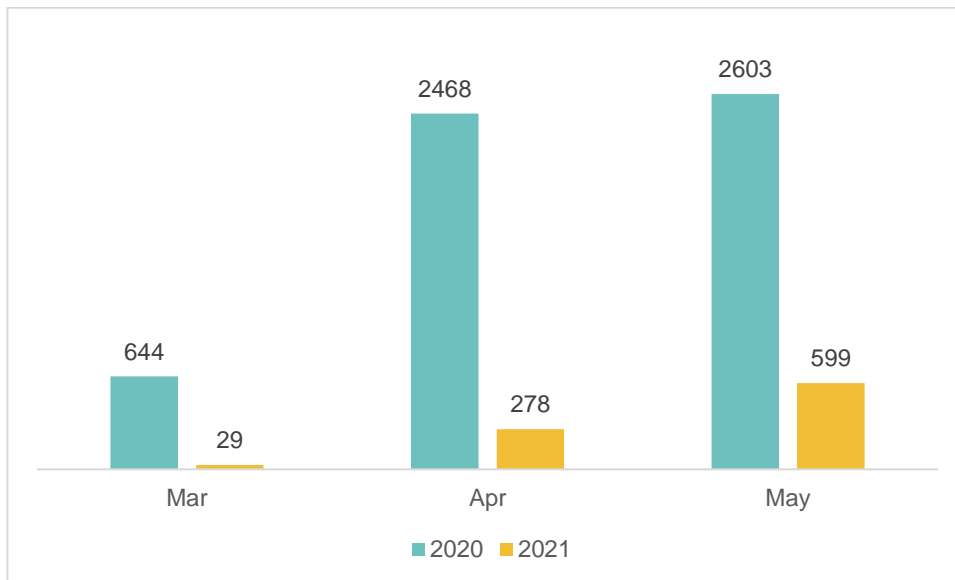
In 2020, 73% of respondents were operating their business in March, 67% in April, and 90% in May. In 2021, 100% of the respondents were operating their business in all three months, indicating learned adaptations to the conditions of the pandemic. The percentage of respondents who procured inputs in 2020 was somewhat stable, whereas this percentage increased over the study period in 2021 (Figure 6).

Figure 5 Percentage of respondents who procured input in 2020 and 2021.



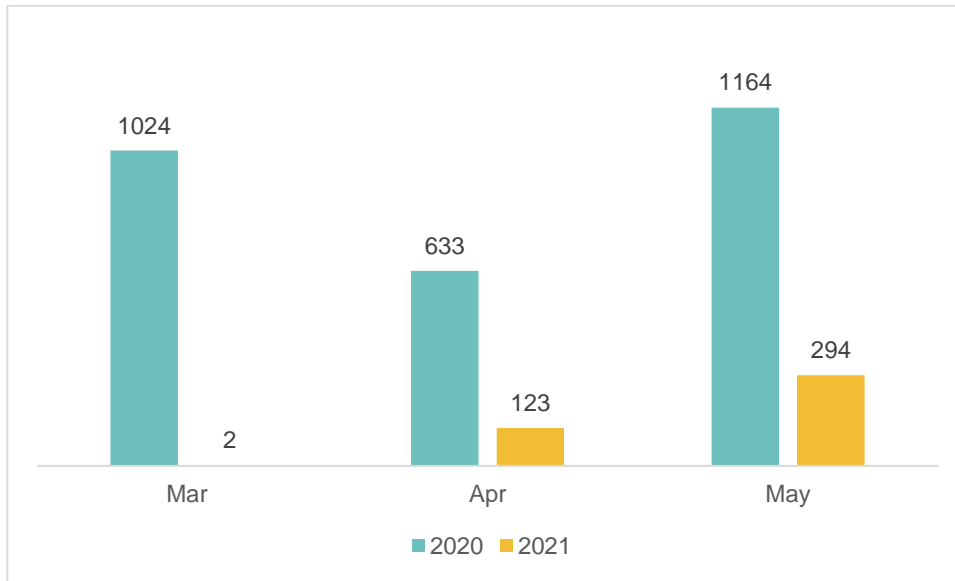
The average procurement price was similar between 2020 and 2021 (USD 216 and USD 219 per ton, respectively). However, the quantity of feed input procured was significantly higher in 2020 than in 2021 (Figure 7). In March 2020, 644 tons were procured, which more than tripled in April and May (2468 tons and 2603 tons, respectively). In comparison, in March 2021 only 29 tons were procured, which increased to 278 tons in April and 599 tons in May.

Figure 6 Total quantity of feed input procured in tons in 2020 and 2021.



The average sales value of the fish was higher in 2020 compared to 2021 (USD 1.18 and USD 0.89 per kg, respectively). The total quantity of sold fish was considerably higher in 2020 than in 2021 (Figure 8). While in 2020, respondents sold 1024 tons in March, 633 tons in April and 1164 tons in May, in 2021 they only sold 2 tons in March, 123 tons in April, and 294 tons in May.

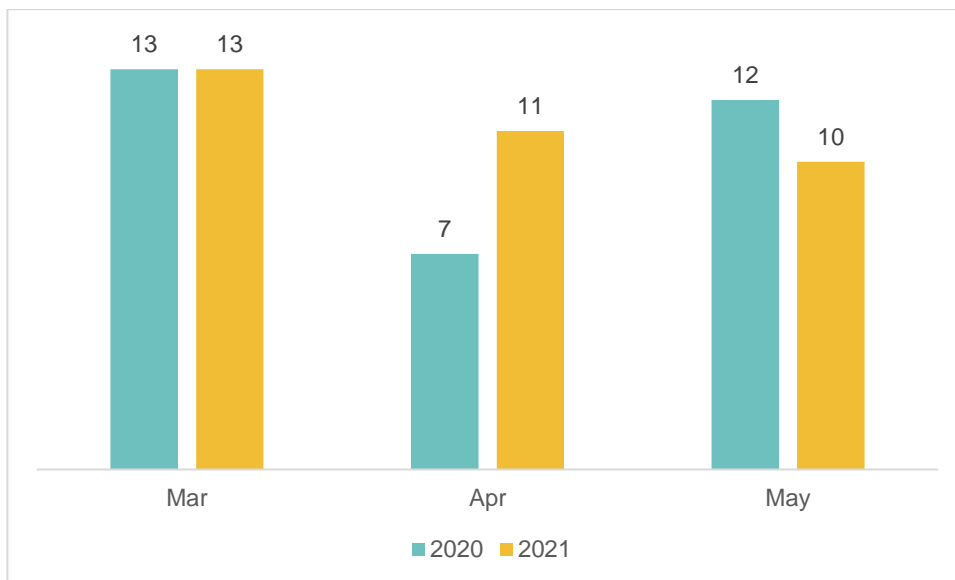
Figure 7 Total quantity of fish sold in tons in 2020 and 2021.



4.2 Feed Mills

In both years, all respondents operated their business in the three months, except in April 2020, with only 50%. The average number of days the business operated varied between 2020 and 2021. In 2021, the average number of days decreased slightly from 13 days in March to 10 days in May.

Figure 8 Average number of days the business operated in 2020 and 2021.



4.3 Feed Seller (pellet and non-pellet)

Only one of the respondents was a non-pellet feed seller, thus, this information has been included here. This respondent operated in all months in 2020 and 2021, and the average number of business days was higher in 2021.

The information regarding pellet feed sellers varied. In March 2021 all respondents (100%) operated their business, which declined to only 20% in May. In March and April 2020, 50% of the respondents operated their business and none in May. Moreover, the average number of days was only one to three days in both years, In 2020, the main reason for the business closure in the first two months was bad weather, while in April and May 2021, the main reason was out of season.

In March and April 2021, the sales values were similar, even though slightly higher in 2020 (USD 430 and USD 376, respectively). The total quantity of sold feed in March 2020 was 1 ton and no feed was sold in the following two months. In March 2021, 2 tons were sold and 1 ton in April. No sales occurred in May 2020 and May 2021.

4.4 Fish Processors

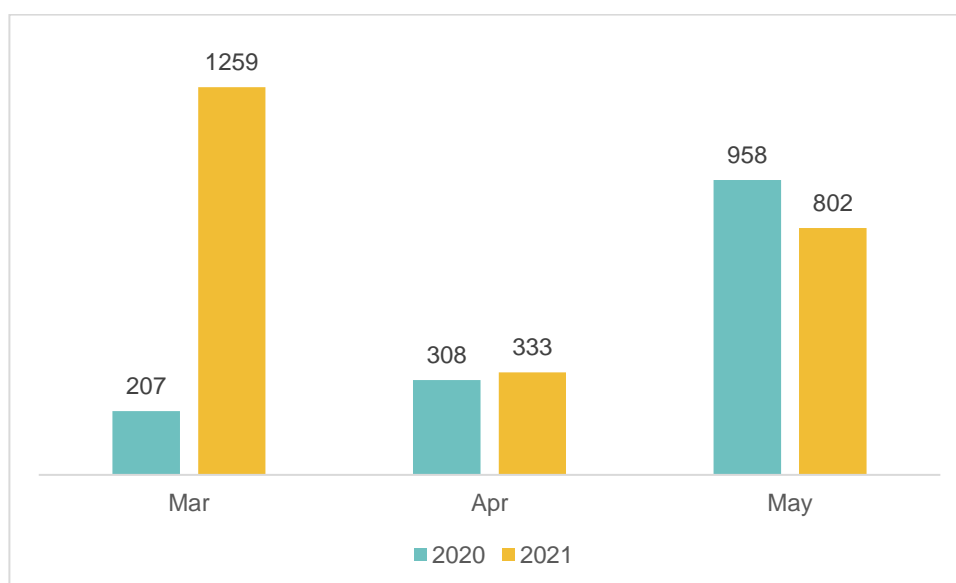
The number of operating fish processors was significantly higher in 2021 than in 2020. In all three months of 2020, 17% of the respondents operated their business, however, 83% were in operation in March 2021, 83% in April, and 60% in May. In 2020, the average number of days the businesses were open was 4.5 days across all three months. In 2021, businesses were in operation for 16 days in March, 8 days in April, and 13 days in May. The main reason for closing the business in 2020 were seasonal closures (80%), while in March and April 2021, it was due to low demand (100%), even though this decreased to 50% in May, with another 50% reporting seasonal closures.

4.5 Fish Retailers

On average, slightly more retailers operated in 2020 compared to 2021 (77% and 71%, respectively). Similarly, the average days the business opened was fairly stable between months and years. In March 2020, the business operated for 19 days, for 16 days in April, and 20 days in May, while in March 2021, 17 days, 19 days in April, as well as in May. In March and April 2020, the respondent reported as main reasons 'others' and fisheries closures in May.

The average sales value for farmed fish was higher in 2020, compared to 2021 (USD 1.5 and USD 0.93 per kg, respectively). As presented in Figure 11, 1,259 tons of farmed fish were sold in March 2021, before it dropped to 333 tons in April, from where it rose to 802 tons in May. In 2020, the sale of farmed fish increased over time from 207 tons in March to 958 tons in May.

Figure 9 Total quantity (kg) of sold farmed fish, in tons in 2020 and 2021.



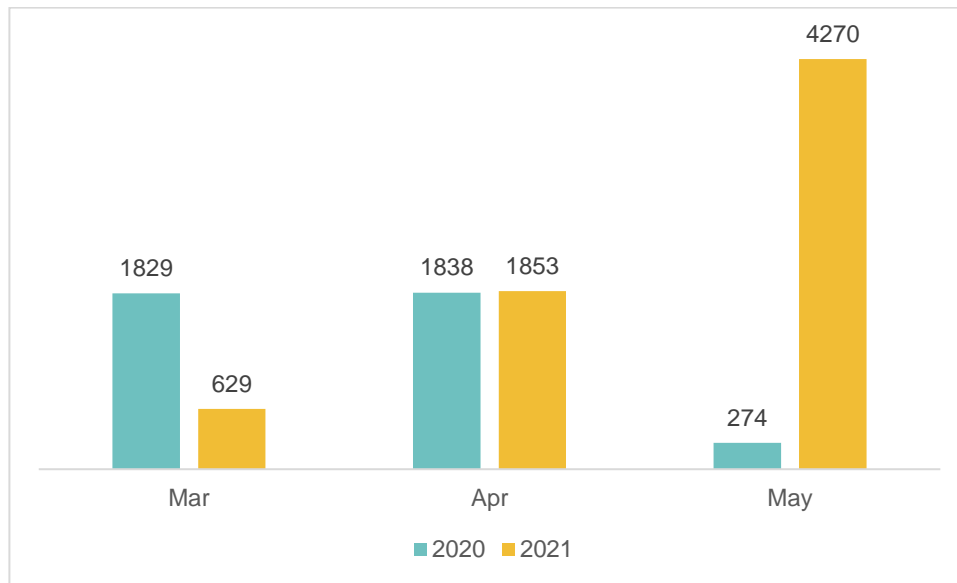
The average quantities of freshwater captured fish sales were overall lower than those of farmed fish. More freshwater captured fish was sold in 2020 than in 2021 (49 and 3 tons on average, respectively). In contrast, more marine captured fish was sold in 2021 than in 2020. In March 2020, 35 tons were sold, 16 tons in April, and 398 tons in May, whereas in March 2021, 372 tons were sold, 904 tons in April, with no sales in May. The sales of shrimp were constant over the three months, though considerably more was sold in 2020. On average, 19 tons had been sold in 2020, whereas only 0.12 tons in 2021.

4.6 Fish traders

In both years, most respondents operated their business (on average 97% in 2020 and 91% in 2021). In both years, the average number of days the business was operated was lower in April than in other months. Businesses were open for more days in 2020. In March 2020, the business operated for 28 days, 18 days in April, and 28 days in May, compared to 24 days in March 2021, 16 days in April, and 26 days in May. The lower number of days in April 2020 was linked to COVID-19 related reasons.

The average sales values for farmed fish per kg displayed differences in these two years. In March 2020, the sales value for farmed fish was USD 1.28 per kg, from where it slightly increased to USD 1.37, before it decreased to USD 1.05. On the contrary, in March 2021 the sales value was USD 1.43, from where it gradually decreased to USD 0.88 in May. This decrease in sales values might be linked to the increase in the quantity of sold farmed fish over the three months, starting with 629 tons in March and rising to 4,270 tons in May (Figure 12). In 2020, the sold quantity was relatively stable the first two months (1,829 tons and 1,838 tons, respectively), before it dropped to 274 tons in May.

Figure 10 Total quantity of sold farmed fish, in tons in 2020 and 2021.



The sales value of freshwater captured fish and also the sold quantity was lower in 2021 than in 2020. While in 2021 the value for fish remained stable around USD 3.8 per kg, in 2020, the values decreased from USD 8.50 and USD 8.10 in March and April to USD 4.27 in May. Regarding the sold quantity in March 2021, 173 tons were sold, which decreased to 54 tons in April and 79 tons in May. More fish was sold in 2020, with 268 tons in March and 485 tons in April, which abruptly dropped to 76 tons in May, less than in 2021.

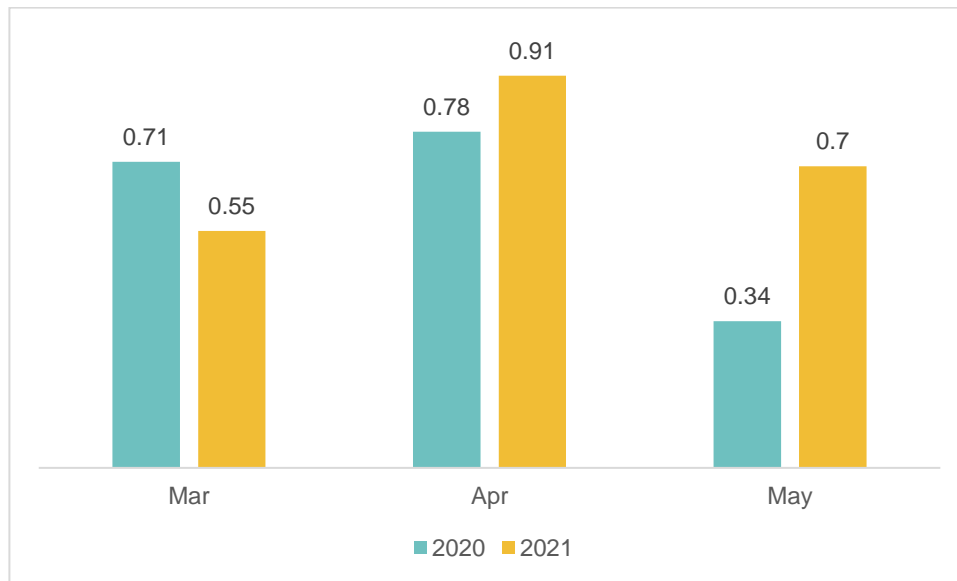
Similar to freshwater captured fish, the sales values for marine captured fish remained stable over the three months in 2021, whereas in 2020 the values increased from March to April, before it dropped in May (USD 2.97, USD 4.55, and USD 1.95 per kg, respectively).

4.7 Fishers

In 2021, most of the fishers owned a boat (96%) and more than half of the respondents went fishing in March and April (56% and 84%, respectively). In May, only 32% went fishing. In March 2020, 72% went fishing, 68% in April, and 12% in May. The low value in May for both years was linked to seasonal closures. Most respondents reported fishing in rivers in both years (85% in 2020 and 84% in 2021), rather than in other waterbodies or mangroves.

While in March 2020, more fish was landed than in 2021, the pattern reversed in the following two months (Figure 13). In March 2020, 0.71 tons were landed compared to 0.55 tons in 2021, which increased to 0.91 tons in April, whereas in April 2020, the quantity was similar to March (0.78 tons). In both years, the quantity dropped in May, to 0.34 tons in 2020 and to 0.7 tons in 2021. This pattern was mirrored in the quantity of sold fish.

Figure 11 Quantity of fish landed in tons, in 2020 and 2021.

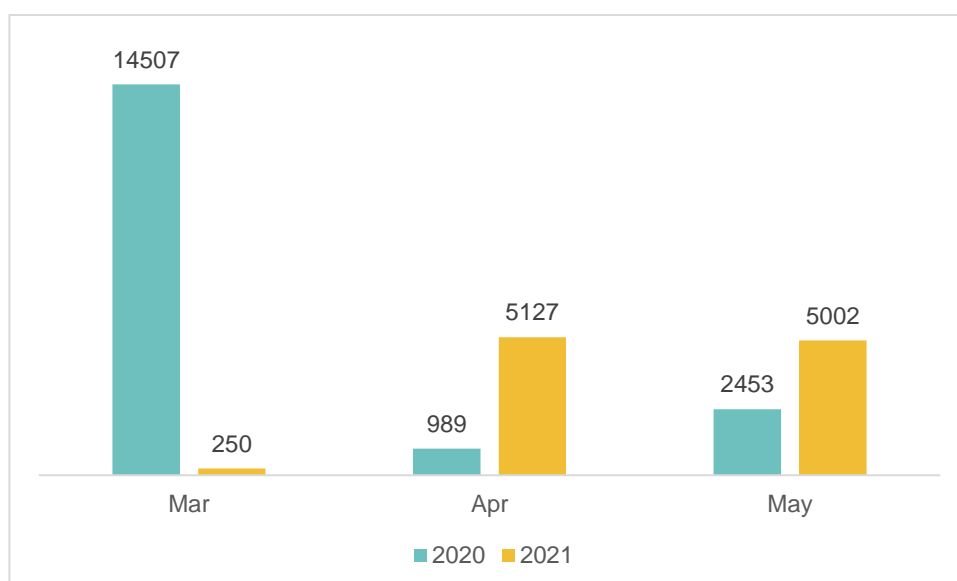


4.8 Fish Hatcheries

In 2021, the percentage of respondents who operated their business increased from 70% in March to 100% in May, whereas in 2020, in the first two months 70% of the respondents operated their business and 80% in May. Similarly, the average number of days the business operated increased from 17 days in March 2021 to 25 days in May. In 2020, in the first two months, the businesses were open for 12 and 10 days respectively, before it increased to 20 days in May.

Figure 14 presents the total value of sold hatchlings in the two years. In March 2020, the value was USD 14,507, which dropped to USD 989 in April and rose to USD 2453 in May. In comparison, in March 2021, the sold value was USD 250, increasing to USD 5127 in April and USD 5002 in May.

Figure 12 Total value of sold hatchlings in USD in 2020 and 2021.



The value of sold fry showed a different pattern for 2020. Contrary to hatchlings, the value was highest in May with USD 3422 and was low in the first two months (on average USD 725). In 2021, the value increased from USD 161 in March, to USD 928 in May.

For fingerlings, the sales value was USD 7385 in March 2020, before it dropped to USD 528 in April and it increased to USD 812 in May. The sales values in March and April 2021, were pretty similar, USD 1757 and USD 1683 respectively, and steeply rose to USD 6332 in May. These patterns may be due to timing of seasonal stocking patterns in alignment with water availability.

Recommendations

1. Evidence suggests that women's ability to work may have been negatively impacted on by the pandemic. Alleviation interventions may require gender-responsive support strategies (e.g. childcare) to allow women to continue working.
2. While respondents had enough financial capital to withstand the impacts of COVID in the first year, the financial impacts are on-going. Financial support of businesses may be critical into years two and beyond.

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