# Impacts of COVID-19 on aquatic food supply chains in Andhra Pradesh, India

The complete summary of survey results can be accessed here.

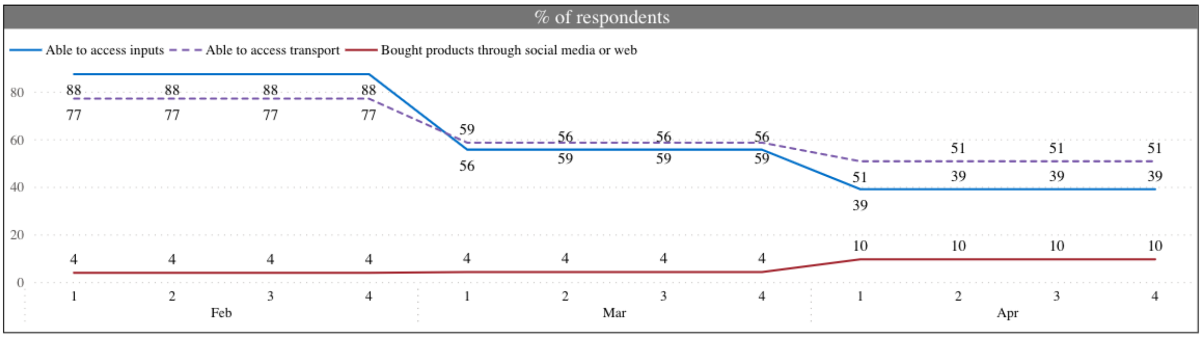
## 1. Overview

A survey was conducted with fish supply chain actors to assess the impacts of COVID-19 on the availability and price of aquatic foods and production inputs. Respondents answered questions about their activity during the months of February, March, and April 2020. The sample consisted of fishers (n=18),fish farmers (n=51), hatcheries (n=10), feed mills (n=1), feed sellers (n=18), fish traders (n=21), and fish retailers (n=9), with the majority of respondents being male. The areas covered included the districts of Nellore (32%), West Godavari (32%), Guntur (14%), Krishna (9%), Prakasam (9%) and East Godavari (4%).

## 2. Key findings

The share of respondents hiring daily labor fell from 59% in February to 31% in April, but the percentage of respondents unable to hire daily labor remained relatively constant at 4-10%. The share of respondents that attempted to buy inputs decreased from 76% to 40% between February and April. Most respondents could access inputs and transport in February, but by April only 51% were able to access inputs and 39% could access transport (**Figure 1**). Between February and April, the percentage of respondents that attempted to sell products, were able to access transport for sales, and were able to find buyers declined by 35, 19, and 22 percentage points, respectively.

**Figure 1: Percentage of respondents able to access inputs, access transport, and bought products through social media or web**




***Hatcheries:*** The share of hatcheries not operating increased from only 10% in February to 60% in April. Likewise, the percentage of hatcheries reporting temporary suspension of operations due to COVID-19 rose from 25% in February to 42% in April. Among hatcheries still operating, the average number of operating days declined from 5 to 2 days per week between February and April. There were no hatchling, fry and fingerling produced or sold amongst surveyed respondents in February, March and April, which may be due to limited shrimp brood stock availability. During this time, international flight restrictions hindered brood stock imports, and hatcheries were therefore only able to produce shrimp with locally available brood.

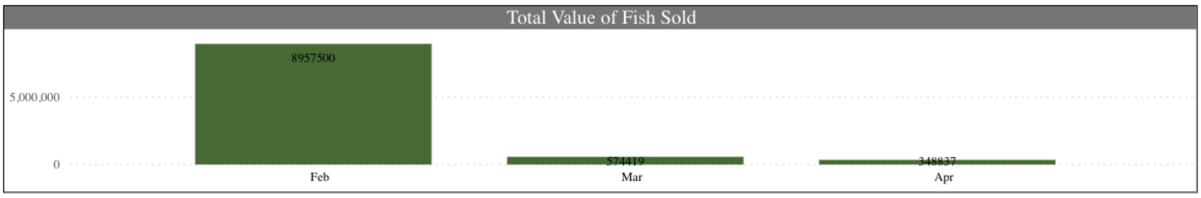
***Feed mills:*** Only one feed mill was sampled, which operated from February to March at an average of 5 days per week. While the average sales value of feed remained stable at 76,000 INR per ton for this one feed mill, the total quantity of feed manufactured declined from 800 to 372 tons from February to April. Similarly, the total value of feed manufactured by this feed mill fell by 53% between February and April.

***Pelleted Feed Sellers:*** While all pelleted feed sellers were operating in February, this declined to 58% in April. Among non-operating feed sellers, 71% temporarily closed in April due to COVID-19. The average sales value of pelleted feed remained stable between February and April. The total quantity of pelleted feed sold, however, fell by 55% between February and March. At the same time, the total value of feed sold fell from 3.1 to 1.6 crores INR.

***Non-Pelleted Feed Sellers:*** All non-pelleted feed sellers were operating in February. In April, only half of non-pelleted feed sellers were operating. All of the non-operating feed sellers in April had temporarily suspended operations due to COVID-19. The average sales value of feed remained stable from February to April at an average of 19,444 INR per ton. At the same time, the total quantity of feed sold fell from 80 to 8 tons. Similarly, the total value of feed sold dropped drastically between February and April by 90%.

***Farmers:*** The majority of farmers were operating between February and April. Among the 35% of farmers not operating in April, 45% temporarily or permanently closed due to COVID-19. From February to April, the total quantity of feed input procured declined from 227 to 150 tons and the total value of feed input procured fell from 84 to 54 lakhs INR. Between February and March, the total quantity and total value of fish seed procured declined by 71% and 89%, respectively, during these same months. In April, the total quantity of fish seed procured rose back up slightly to 2,256 pieces while the total value of fish seed procured increased to 2 crores INR. However, this still represented a marked decline from the 7,770 total fish seed procured and 18 crore INR total value of fish seed procured in February. The average sales value of fish rose slightly from 122 INR per kilogram in February to 150 INR per kilogram in April, but the total quantity and total value of fish sold both declined steeply, from 74 to 2 tons and 90 to 3 lakhs INR, respectively (**Figure 2**). Between February and March, the total quantity of shrimp sold fell by 97% from 10 tons to less than 1 ton and the total value of shrimp sales fell by 98% from 23 lakhs INR to 44,651 INR. During this time, the average sales price of shrimp also dropped from 230 to 160 INR per kilogram. From March to April, the average sales price of shrimp rose back up to 200 INR. Similarly, the quantity of shrimp sold increased from less than 1 ton to 9 tons and the total value of shrimp sold rose from 44,651 INR to 19 lakhs INR between March and April.

**Figure 2: The total value of fish sold by farmers (INR)**



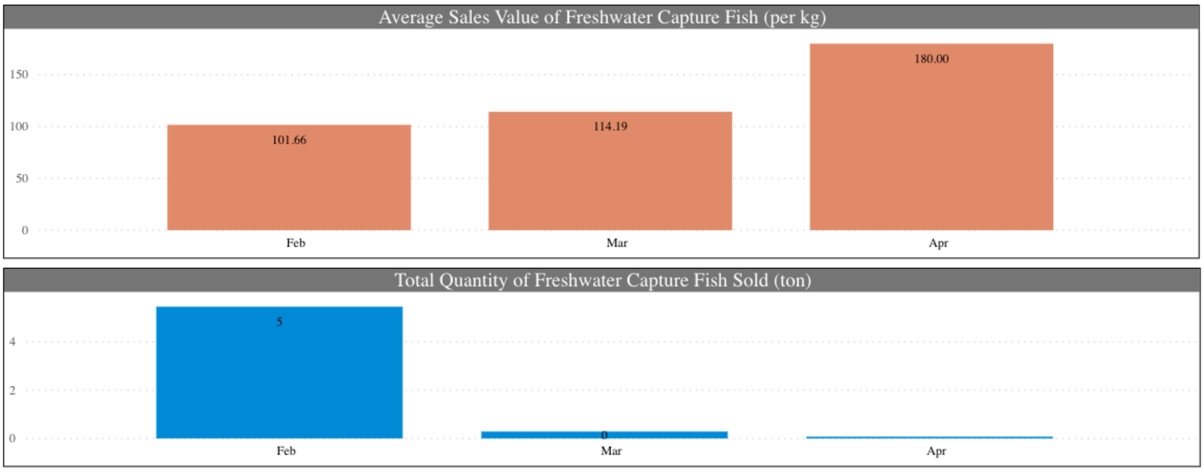

***Fishers:*** All fishers surveyed fish by boat, with the majority using an engine boat. The percentage of fishers who did not go fishing increased by 94 percentage points between

February and April. While 27% cited temporary closure due to COVID-19, another 58% cited closed season, or out of season for fishing as reasons for not fishing in April. The quantity of fish landed, total quantity of fish sold, and total sales value of fish all declined drastically by nearly 98% between February and April. This decline may be attributed to a number of events, including seasonal closure of mechanized boat fishing from April to June in the India East Coast, COVID-19 lock down restrictions of fish activities, and the impact of Cyclone Amphan in May. The majority of respondents consumed their own catch from February to April. During the same period, the share of own catch consumed by households increased from less than 1% to 6%.

***Traders*****:** The majority of fish traders were operating between February and April. Among the 38% of traders not operating in April, 27% were temporarily closed due to COVID-19 and 40% were unable to hire transport services. Between March and April, the average sales value, total quantity, and total value of farmed fish all declined by 62%, 70%, and 89%, respectively. The average sales value of shrimp, on the other hand, remained relatively stable between February and April. At the same time, the total quantity and total value of shrimp sold dropped from 289 to 187 tons and 5 to 3 lakhs INR, respectively. By April, the total quantity and total value of shrimp sold rose back up to 242 tons and 4.8 lakhs INR, respectively.

***Retailers:*** While the majority of fish retailers were operating in February and March, 78% were no longer operating in April. 33% of non-operating retailers in April cited temporary closure due to COVID-19, while 25% cited the closed season for fishing as the reason for not operating. Freshwater capture fish and shrimp made up an increasing share of business activity between March and April, with each representing 50% of business activity in April. From February to March, the average sales value of farmed fish rose slightly from 97 to 119 INR per kilogram. At the same time, the total quantity of farmed fish sold fell by 40% and the total value of farmed fish sold fell by 26%. The largest declines in farmed fish were seen for tilapia, with 40%, 82%, and 89% decreases in the average sales value, total quantity, and total value, respectively, between February and March. For freshwater capture fish, the average sales value rose from 102 to 180 INR per kilogram between February and April (**Figure 3**). At the same time, the total quantity of freshwater fish sold fell from 5 tons to less than one ton (**Figure 3**), with the total value of freshwater capture fish also falling from 5.5 lakhs to 13,395 INR. Between February and March, the average sales price of marine capture fish increased by 72% while the total quantity and total value of marine capture fish sold declined by 71% and 53%, respectively. Shrimp experienced a drop in average sales value from 318 INR per kilogram in February to 280 INR per kilogram in April. At the same time, the total quantity and total value of shrimp sold fell by 69% and 73%, respectively.

**Figure 3: Average sales value of freshwater capture fish (per kg) and total quantity of freshwater capture fish sold**




## 3. Recommendations

- Provide financial support and access to credit for supply chain actors who have lost substantial amounts of revenue.
- Safeguard the ability to access transportation, movement of merchandise, and connections between supply chain actors.
- Conduct research on how COVID-19 may transfer through fish market practices and ways to mitigate this.
- Provide health and insurance coverage for fishers and aquaculture farmers working under COVID-19 health risks.