Impacts of COVID-19 on aquatic food supply chains in Odisha, India

The complete summary of survey results can be accessed here.

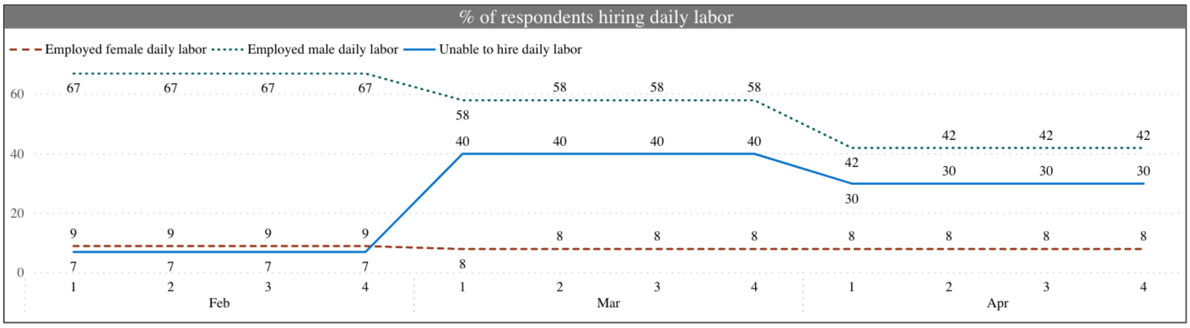
1. Overview

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 feed mills (n=2), feed sellers (n=15), hatcheries (n=10), fish farmers (n=37), fishers (n=17), fish processors (n=3), fish traders (n=8), and fish retailers (n=8), with the majority of respondents being male. The divisions covered were the Central Division (69%), Northern Division (17%) and Southern Division (14%). Districts with the most respondents were Jagatsinghpur (21%), Puri (16%), Jajpur (7%), Sambalpur (6%), Khordha (5%), Mayurbhanj (5%) and Bhadrak, Kendrapada, Angul, Balangir, Ganjam, Kalahandi (4% each).

2. Key findings

The share of respondents employing male daily labor fell from 67% to 42% between February and April, while the share of respondents who were unable to hire daily labor rose from 7% to 30% (**Figure 1**). The percentage of respondents who attempted to purchase inputs also dropped from 75 to 41 (-34 percentage points) during this time. While all respondents were able to access inputs and transport in February, only 56% were able to access transport and 49% were able to access inputs in April. The percentage of respondents attempting to sell products, able to access transport for sales, and able to find buyers all declined by 33, 41, 38 percentage points, respectively, from February to April.

Figure 1: Percentage of respondents hiring female daily labor, hiring male daily labor, and unable to hire daily labor

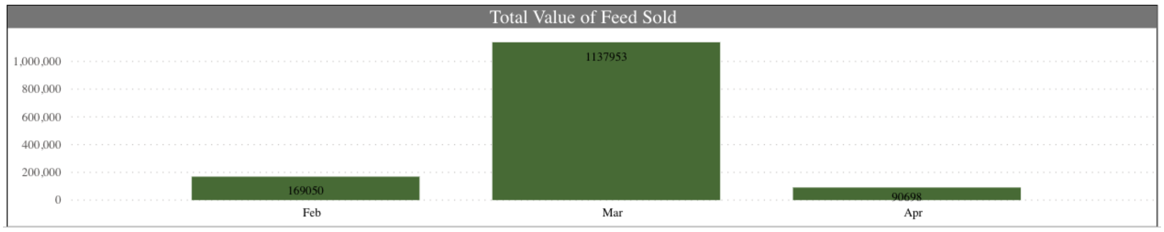


Hatcheries: While 80% of hatcheries were operating in February and March, only 40% remained operating in April. The 60% of hatcheries not operating in March cited temporary suspensions due to COVID-19 as the main reason. The total quantity of hatchlings produced increased from 2,000 to 17,209 kilograms and the total value sold rose from 30,000 to 1.8 lakhs INR between February and March. The total quantity and total value of fry sold increased by 4,544 kilograms and 1.3 lakhs INR, respectively, between February and March. Hatcheries reported they did not produce or sell any hatchlings and fry in April.

Feed mills: All feed mills were operating in February and March. However, half stopped operating in April. All of these suspended operations because of COVID-19. Feed mills that were still operating in April only did so on average two days per week. While the average procurement prices of feed ingredients remained stable between February and April, the total quantity procured fell from 700 to 372 tons and the total value procured declined from 1.4 crores to 7.4 lakhs INR. Nevertheless, the average price of feed sold and the total quantity and total value of feed manufactured stayed relatively constant from February to March.

Non-Pelleted Feed Sellers: Although most sellers of non-pelleted feeds were operating in February and March, only 50% continued operating in April. Among those that were non-operational, half cited temporary suspensions due to COVID-19, 38% cited an inability to hire transport services, and the remainder cited restrictions on road transport. The average number of days that businesses operated dropped from five to two days per week among those still operating. The average sales value of all non-pelleted feeds (including mustard oil cake, peanut oil cake, and rice bran) remained stable between February and April at around 33,000 INR/ton. The average sales values of mustard oil cake and peanut oil cake remained relatively stable at an average of 28,555 INR and 37,216 INR, respectively. The average price of rice bran, however, increased from 12,000 in February to 20,000 in April. The total quantity and total value of non-pelleted feed sold rose from 5 to 38 tons and 1.7 to 11.4 lakhs INR, respectively, between February and March, falling back down to February levels in April (**Figure 2**).

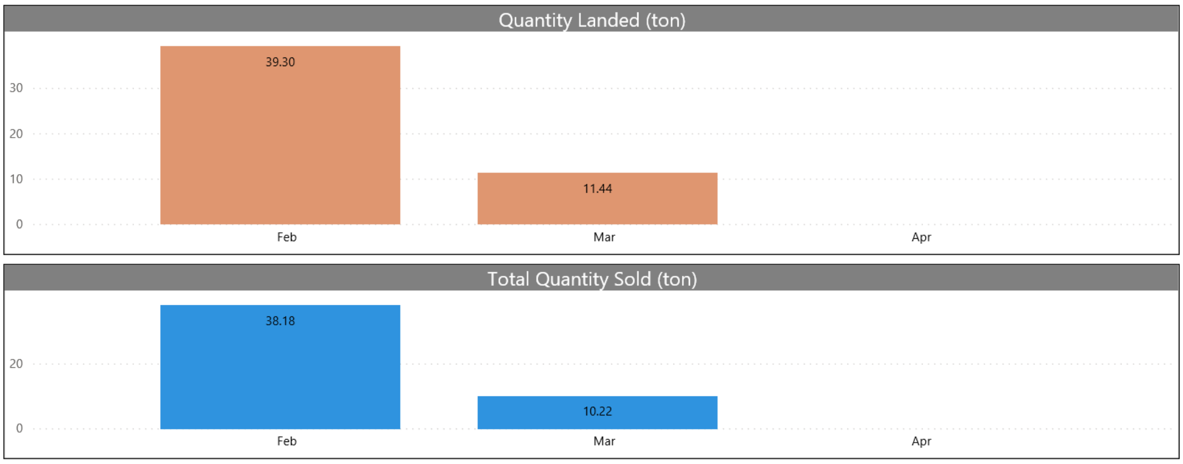
Figure 2: Total value of feed sold (INR)



Pelleted Feed Sellers: All businesses selling pelleted feed were operating In February, but this share fell to 57% in April. 60% temporarily suspended operations due to COVID-19, with the remainder not operating because of restrictions on transport and the inability to hire transport. The average sales value of feed fell from 1.5 lakhs to 74,225 INR between March and April. The total quantity of feed sold remained relatively stable over this period, but the total value of feed sold halved, from 2.4 to 1.2 crores INR.

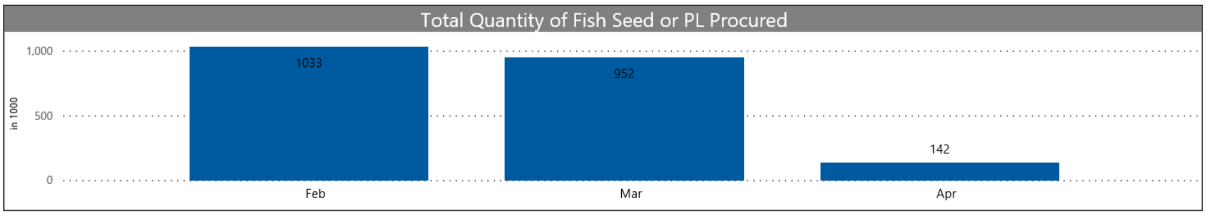
Fishers: The majority of surveyed fishers used an engine boat and fished offshore. All fishers went fishing In February and March, but none fished in April. 63% reported suspending operations temporarily due to COVID-19. The quantity of fish landed and sold, and the total sales value all fell by around 70% from February and March, prior to business closures in April **(Figure 3)**. When fishers were operating, all fishers consumed part their own catch, and the share of own catch consumed by fisher households increased slightly from 1% to 3% between February and March. However, the average quantity of fish consumed per household decreased 27%.

Figure 3: Quantity of fish landed (t) and sold (t) by fishers



Farmers: The majority of farmers continued operating between February and April. Among the non-operating farmers, the percentage who cited temporary closure due to COVID-19 increased from 13% to 20%. The average procurement price of inputs rose by 57% between February and April, largely due to the average price of sinking feed increasing by 50%, while the total quantity and total value of feed inputs procured declined by 75% and 64%, respectively. The total quantity of fish seed procured decreased by 810,000 (-85%) between March and April (**Figure 4**). The total quantity of fish sold rose from 10 to 69 tons and the total value of fish sold rose from 15.5 to 90.4 lakhs INR from February to April. The largest increase in total quantity and total value of fish sold was for mrigal.

Figure 4: Total quantity of fish seed input procured



Traders**:** All fish traders were operating in February. In March, this declined to only 50% of traders operating, but went up again to 75% by April. In March, when the highest percentage of fish traders were not operating, 40% of non-operating traders had temporarily suspended operations due to COVID-19 and another 20% had stopped operating because of restrictions on road transport. The total quantity of farmed fish sold declined from 3 tons to 1 ton and the total value of farmed fish dropped from 5.3 to 2.3 lakhs INR, while the average sales value remained the same. Marine capture fish experienced a similar trend, with the total quantity and total value of marine capture fish sold dropping by 80% and 84%, respectively.

Fish processors: Although 67% of fish driers were not operating in February and March, 100% started operating again by April. Among non-operating fish driers in March, 67% permanently stopped operating due to COVID-19-related suspensions set by the Government. Two were allowed to remain open in February and March because they regularly supply materials to foreign countries. In April, the Government granted permission for aquatic value chain actors, including fish processors, to continue their work while maintaining COVID-19 safety guidelines issued by the Government. In April when activities resumed, respondents dried less than one ton of fish and sold half a ton of processed fish with a total sales value of 40,465 INR.

Retailers: The majority of fish retailers remained open from February to April. The percentage of fish retailers who were not operating rose from 13% in February to 38% in March. Retailers who were open, however, were not operating at full capacity, on average opening only 2 days per week. 38% of non-operating retailers temporarily suspended operations due to COVID-19. While retailers sold farmed fish, marine capture fish, and shrimp in February and March, only farmed fish was being sold in April. The price of farmed fish remained stable. At the same time, both the quantity and value of farmed fish sold dropped drastically by 65%. Between February and March, the total quantity and total value of shrimp sold likewise declined by 55% and 58%, respectively, despite the average sales value remaining relatively the same.

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.