



**ORIGINAL RESEARCH PAPER**

**Zoology**

**SURVEY ON ESTIMATING THE IMPACT OF NOVEL CORONA VIRUS (COVID-19) SECOND WAVE PANDEMIC ON FISHERIES SECTOR IN INDIA**

**KEY WORDS:** Covid19, Lockdown, Impacts, Fish farming, Survival, Recreation

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**ABSTRACT**  
 In India second wave lockdown is a unrivalled shock for the economy and health systems. Lockdown has been officially started from 7th April, 2021 which is most important time for harvesting and summer stocking in pond. Fisheries sector has been recognized as an important sector in the economic growth of India. This working paper aims to describe the multi directional economic impact of the fisheries sector from this pandemic. I conducted wireless survey through mobile phone collected information from different stakeholders of different agricultural zones of INDIA to asses impact of pandemic situation in fisheries sector. COVID-19 has been affected in different areas of fisheries sector including reduction in price, problem in imports and exports, reduction of consumption also pandemic leads to recover in some ecosystems due to global "Anthropause".

**INTRODUCTION**

Aquaculture in india plays an important economic role and being as the second largest country in aquaculture production, the share of inland fisheries and aquaculture has gone up from 46percent in the 1980s to over85percent in recent years in total fish production[2]. India is endowed with fisheries resources including inland, marine and fresh water resources [3]. According to FAO(2016), the aquaculture production in rapidly growing which has made it the fastest expanding global production system over the last 40years. on April 7th india initiated a strict lockdown, later extended until may31 and its still going on [1]. During lockdown fishing was halted due to the closure of storage facilities, markets, processing plants later aquaculture businesses started their activities under conditions of maintaining adequate social distancing[4] also COVID-19 pandemic {2nd wave} has suggested some positive ecological responses and improved ecosystem functioning[5] from reduced than human activities like transportation, pollution etc., more than 9million active fisheries directly depend on fisheries for their livelihood 80percent of which are small scale fishers ;the sector as a whole employs 14 million people[6]. all the value Chain in aquaculture including hatcheries to processing has been destroyed through out the world during the pandemic although the analysis of economic loss is quite difficult now but some issues can be pointed out where government and non-government agencies can work to improvise the situation[8]. starting from Wuhan city, china, on December 31<sup>st</sup> 2019, COVID-19 pandemic has immobilized the world by its health and economic shock. By observing the terrible extent of the outbreak, WHO (World Health Organization) declared COVID-19 as a global emergency on January 2020[7].

**MATERIAL AND METHOD**

Survey was carried out using non-structured questionnaire to collect the relevant information from different stake holders of aquaculture sector regions in India. The information was received over telephone call to the respondents to evaluate the impact of pandemic COVID-19(2nd wave) on fisheries sector.

**RESULTS AND DISCUSSION**

Impact of novel corona virus (COVID-19) second wave pandemic on fisheries sector in India. One of the major nutritious part of food chain are fishes and key source of employment generation among rural costal people. More than 20 million people are unhappy due to jobless and workless during this pandemic. Covid-19 second wave

national wide lockdown situation mainly the "price fall" decreased consumer due to unavailability of foreign and local buyers led to market instability and price reduction of fishes. Mostly harvesting and feeding were effected due to lockdown. Majority of farmers are thinking to adopt and choose alternative livelihood /work for sustaining and not interested to harvest because price fall is more then fish farm. Which is also another reason fish farming and shrimp farming which will get hampered for non-availability of migrant workers. Also suppliers, producers, will be greatly effected due to reduce in demand all the stake holders and suppliers in fisheries sector are suffering with severe problems for transport crisis and due to delay in exports and imports fishes may spoil immediately. According to director, ICAR-CIFT kochi will be supporting the government through a Covid-19 impact assessment study conducted by its scientists in Kerala, Andhra Pradesh Gujarat and Maharashtra. And a comprehensive report on study of major impacts of harvest and post harvest fisheries in india .respondents indicated decreased pressure may arise from reduced market demand and stay-at-home orders preventing travel to and within fishing areas. In some tropical regions the crisis coincided with peak fishing season, reduces access and fishing effort may also increased brood fish survival and replenish fish stocks[10]. Restrictions on gatherings, movement of fisherman, shutdown of harbours, markets and constraint in input and service delivery across the value chain etc., the slump in demand due to the covid spread in major export markets like the us, china and European union members states have started trickling to the ground level through there Is a rise in demand for dry fish, dry units are unable to make optimum use of the opportunity due to difficulty in sourcing the raw material inter-state an intra-state movement are key to Indias shrimp sector. farming, processing feed production and research activities are concentrated in different regions. the industries structure meant that lockdown restrictions left In vulnerable to labour shortages and market shocks. To say the sector was unprepared for COVID-19 is an understatement. The biggest impact on shrimp hatcheries are came from manpower. India is the worlds third largest shrimp producer and the industry brings in an estimated \$5billion of foreign exchange earning every year. The country exports 90% of its shrimp. With the United States, China, European union and Japan receiving shipments. Economists estimate that the sector employs 1.2million people across the value chain from farming, processing, retailing and exporting. Inland fisheries may offer short-term, mid pandemic employment (eg., fishing and processing), food resources,

and socially distanced recreation, but sustained yield is also challenged by shifting harvest restrictions and consumer demands exacerbated or compounded by preexisting pressures (Eg., dams and pollution) this brief report assesses expert-perceived pressures from COVID-19 (increased exchange, no change, or lessened) on global inland fisheries and relates these data to three indicators: 1) reported inland fish catch 2) Human development index (HDI): composite metric, education, life expectancy, live standard. 3) Fisheries provisioning value (high catch and/or low HDI).

### DISCUSSION

In India fisheries sector plays an important role in the food supply and economic development of the country. The lockdown period is the peak time for stocking. Stocking activities were become extremely tough due to unavailability of skilled persons. The farmers are kicked in to the losses due to absence of storage facilities. Proper awareness during farming like social distancing in time of harvesting, hygiene, sanitation, wearing face mask will help to prevent the spread of the COVID-19 (2nd wave) pandemic. The government should develop minimum support price for fish and fishery products which will be helpful for the farmers and finally the end of the lockdown will not end the problems. Because government should take particular measures like different agricultural loans should be expanded and facilitate for smooth flow of credit for the farmers. If these would be done it will also ensure the speedy recovery of the fishery sector. It is recommended to promote fishery sector through different printed media, Electronic media (T.V programs), Social media, and Web media introducing online market may help to buy the fishes maintaining social distancing, digitalization of marketing relationship and development of electronic portal of producer organization could be the best option for whole selling and retailing of the fish with reduction in services on inland fisheries (Eg. food and income). Such may apply to other extracted multiuse resources (Example, timber and cultivated crops) [9]. Aquafarm should be opened for supplying the necessary inputs for aquaculture. Transport services related to aquaculture industry should get privilege [8]. Improverish section of any society are vulnerable to any disaster or pandemic situation. India being an agricultural backbone country with 85% small and marginal farmers, in which maximum are landless farm labours, welfare measures must be taken by both state and central government to protect them from Covid shock [7]. The corona virus pandemic has adversely impacted fisheries culture production across the globe. The economic fallout from nation wide stay-at-home orders and slowed export for farmed shrimp lockdown and closed services have been catastrophic, especially in India. According to a paper published in aquaculture, researchers with India's central institute (CIBA) estimate that the sector will face a \$1.5 billion loss for 2020-2021 due to the pandemic. The study found that COVID-19 outbreaks and restrictions negatively impacted each link of the industries supply chain. Shrimp hatcheries, farms, processors, retailers and exporters lost an estimated 30 to 40% of their business in the wake of India's lockdown the research team also expects a 30 to 40% reduction in labour resources due to suppressed farming and processing activities their analysis also warns that these effects could be compounded if India experiences a 2nd wave of covid -19 must contend with another lockdown during the winter shrimp season. Inland fisheries, as a provisioning positive narrative of covid -19 environmental impacts (eg., a greater portion of fisheries were perceived to experience increased or no change in pressure than those experiencing decreased pressure). Inland fisheries with higher provisioning value for upholding livelihoods and nutrition are perceived at higher risk of increased pressure due to covid-19.

### CONCLUSION

COVID-19 (2<sup>nd</sup> wave) outbreak has been deemed a global health emergency. Especially agriculture and the allied

culture sectors will be in most vulnerable conditions. To minimize these types of conditions V-shaped growth in economy should be taken. The most important issue that aquafarms have to surmount due to pandemic is the problem of repaying loans and other unconcerned to personal working because government should look at to this and expand the agricultural loans. Shrimp production cycles are inflexible and time-dependent. A sudden death of skilled labour meant that hatcheries struggled to full fill their contracts. A second order impact of the lockdown was seen in the precipitous drop of consumer and export demand for shrimp larvae, holding on to unsold post. Larval shrimp meant taking a steep loss. The researchers their available seed stock due to economic uncertainty. COVID-19 effects on inland fisheries reflect the complexity of the pandemic.

Analyze the effect of classifier with feature selection and find out whether the cost sensitive learning algorithms can be used to build better defect prediction models.

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### REFERENCES

- [1] (2021) science.thewire. in [online] available: <https://science.thewire.in/health/covid-19-for-the-second-wave-a-lockdown-should-be-indias-last-option>
- [2] (2005-2020) FAO. aquaculture sector overview. India. National aquaculture sector overview fact sheets. ayyappam.s.in: FAO fisheries and aquaculture department [online]. Rome. updated 4 april 2014.
- [3] Food and agricultural organization of the united nations, FAO fisheries and aquaculture department (2016). fishstat software for fishery statistical time series. Version 2.11.4 available at [www.fao.org/fishery/statistics/en](http://www.fao.org/fishery/statistics/en).
- [4] (2021) The economic times website. [online] available: [economic.times.india.times.com](http://economic.times.india.times.com)
- [5] R.T. corlett et al., impacts of the corona virus pandemic on biodiversity conversation. *Biol. conserv.* 246, 108571 (2020).
- [6] Kapila manoj, rajana bengani, alpa varsani ISSN NO: 0022-1945. Volume xii, issue ix, September / 2020.
- [7] Soumyadip purkait, sutanu karmakar, supratim Chowdhury, Prasenjit mali, and surya kanta sau. ISSN NO: 2582-2845 copyright may-June, 2020; ISPAB
- [8] S.M rafiqzaman, *American journal of pure and applied biosciences*, 2(2), 36-38, 2020
- [9] Gretchen L. stokes, Abigail J. Lynch, Benjamin s. lowe, simon funge smith, john valbo-jorgensen and Samuel. J. smidt. [www.pnas.org/cgi/doi/10.1073/pnas.2014016117](http://www.pnas.org/cgi/doi/10.1073/pnas.2014016117).
- [10] S. mandal, covid-19 imposed lockdown might be a boom for aquatic ecosystem. *curr. sci.* 118, 1641 (2020).