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The environmental impacts of COVID-19: perspectives from fishing communities



Introduction

The global crisis caused by COVID-19 has resulted in great challenges to the three dimensions of sustainability: social, economic, and environmental. Worldwide, attention towards social (with an emphasis on health) and economic issues, has left environmental issues in second place. In Mexico for example, since March 2020, essential activities such as food production, health (pharmacies, hospitals) and public security have been prioritized¹. With the gradual re-opening of services and the return to activities, it has been sought, above all, to satisfy the basic needs of the population and reactivate the economy. However, the general strategies for the *new normal* in Mexico need to integrate environmental issues (e.g. adaptation to climate change, sustainable practices) and challenges arising from the pandemic (e.g. solid waste and contaminants).

Coastal communities that have invested in the design and implementation of marine conservation and sustainable fishing projects, in collaboration with government agencies, academia, and civil society organizations², now face the dilemma of maintaining the essence of their communities or continuing with the sustainable practices that they have developed over the years. However, there are

cases of coastal communities that have been able to continue implementing solutions and best practices, as for example, beach cleanups, monitoring (fishery, environmental and ecological) and enforcement of marine reserves, including protected areas managed by the National Commission of Natural Protected Areas (CONANP), fish refuge zones³ managed by the National Commission of Aquaculture and Fisheries (CONAPESCA) and voluntary reserves managed by coastal communities to recover fish stocks. It is essential to recognize that the development of these communities relies on the sustainable use of fishery resources. This is how they ensure their quality of life, without jeopardizing the environment and its resources.

In this seventh report, Comunidad y Biodiversidad, A.C. (COBI) documents the perceptions of small-scale fishers in Mexico⁴ on the environmental impacts in their communities and fishing areas caused by the COVID-19 pandemic. Likewise, the solutions that are being developed in coastal communities to face environmental changes and challenges are shared, with the goal of promoting the recovery of the fishing sector in the context of the current crisis.

What was done?

From 28th September to 9th October 2020, 161 interviews⁵ were conducted (33 women and 128 men), in order to document the environmental changes they perceive in their communities, as well as in the fishing grounds and marine reserves in which they work and are responsible for. Topics such as the pollution caused by the waste⁶ generated during the pandemic, the impact of human activities, conservation, and sustainable fishing were addressed.

This report reflects the perceptions of fishers from 62 fishing communities located in 14 Mexican states⁷, including 70 fishing organizations (65 cooperatives), and 21 fisheries⁸. The average age of interviewees was 43 years old, ranging from 20 to 71. Of the total number interviewed, 93% work in small-scale fisheries: 64% participate in extraction

(fishing), 20% in administration, and 9% in other stages of the supply chain (distribution, catch cleaning, processing, sales, biological and technical monitoring). Only 4% of the total work in aquaculture and the remaining 3% did not work in fisheries or aquaculture at the time of the interview.

In addition, 85 social media profiles were monitored (59 on Facebook and 26 on Twitter). Out of these, 26 (all on Facebook) belonged to fishers (10 women and 16 men), six to fishing cooperatives and 13 to government agencies in the fishing and environmental sector⁹. Likewise, 40 profiles of fishing groups were included (e.g. confederations, national and international organizations), 12 of which were closely linked to gender issues. In total, 1,334 messages posted on Facebook and Twitter were analyzed.

Marine reserve management during the pandemic

“We do what we think is best, but we haven’t received any training”
Administrator, 39, Sonora.

Fifty-four percent of the people interviewed (76% men, 24% women) harvest inside a protected area¹⁰ (e.g. fauna and flora protection areas, natural resources protection areas, national parks, or biosphere reserves), 31% have implemented voluntary marine reserves, and 21% fish refuges³. A small percentage of interviewees (2%) have both voluntary marine reserves and fish refuges. From the total, only 11% mentioned they have received advice or support from the federal government to resume activities such as fishing or tourism in these areas and their communities, during the lock down. They mentioned that the federal government has been mostly been in contact face-to-face, with visits to their community or their

offices. Some of interviewees also mentioned communication through Facebook, WhatsApp, email, and by telephone.

“We haven’t received advice from anyone on to return to work safely. We took our measures”
Fisher, 31, Oaxaca.

Of the fishers who have voluntary marine reserves or fish refuges, 83% reported that as a result of the pandemic, the way they manage them has not changed, since they have not fished the zones. On the other hand, 17% of the participants commented that the management of these areas has changed, for example, they suspended monitoring and enforcement activities. Additionally, three communities (two in the Pacific and one in the Caribbean) temporarily opened their voluntary reserves for subsistence fishing and as a measure to boost their economies.

COVID-19's footprint on the environment: the waste generated

Most interviewed fishers (83%) reported that public services such as waste collection, drainage, and the collection of recyclable materials have continued to operate normally in their communities during the contingency. In some communities the municipality is responsible, while in isolated or inaccessible areas, it is the community that takes charge. The rest of the interviewees (17%) reported that some public services managed by municipalities were suspended during the contingency, mainly waste collection.

Of the 17% of interviewees who did not have waste collection services in their communities, 5% collected it themselves and took it to the landfills in their vehicles, 4% chose to bury it or burn it¹¹, 1% began to reuse some materials and just one person mentioned that she started composting. One person highlighted that in his community a group of women was responsible for cleaning the streets. Other interviewees, in addition to managing their own waste, had directly requested that the municipality restore the service. However, only one person mentioned that public services were restored as a result of this request.

The interviewees were consulted about their perception on the amount of waste in their communities since the pandemic began. Almost half of them (45%) believed that the amount of waste generated had not changed during the pandemic. On the other hand, there are those who report that it had decreased (27%) or increased (24%). The remaining 4% mentioned that they did not know if it had changed.

“The amount of waste has not increased, but I think that now it is much more evident that people throw it where it does not go, the streets are full of masks”

Fisher, 32, Yucatán.

In the coastal communities, 72% of the interviewed people perceived that inadequate waste management due to the absence of services during the contingency, has had a negative impact on the environment. They expressed concern that on many occasions solid waste goes directly into the sea and that accumulating waste could be a source of infection. The interviewees were also concerned that previously uncommon items, such as face masks, were now becoming a problem. As a response to this problem, 91% of the interviewees (117 men and 31 women) reported using reusable cloth face masks to protect themselves from COVID-19, an action that also supports their economy as they are often manufactured locally¹².

Due to the preventative measures taken during the pandemic, the use of products for cleaning and disinfection has increased, generating liquid waste. Of the total number of people interviewed, 91% reported an increase in the use of products such as chlorine, sanitizing gel, liquid cleaners and soap. There is no official data on how the excessive use of chlorine and other disinfectants will affect health and the environment¹³, however, the precautionary principle should be applied to the management of liquid waste, to reduce water pollution due to the lack of adequate drainage systems.

Restarting the ocean economy

In March 2020, the federal government ordered the temporary suspension of non-essential activities and the prioritization of essential activities such as agriculture, fisheries and livestock production¹. Nonetheless, economic activity in fishing communities has been affected and, in some cases, interrupted, due to the lockdown¹⁴ and the closure of markets¹⁵.

Most of the interviewees (91%) suspended their economic activities at sea. Forty-five percent simultaneously suspended two or more economic activities (mainly small-scale fishing and tourism, as well as sport fishing). The remaining 46% only suspended one activity: tourism (26%), small-scale fishing (18%) and sport and industrial fishing (2%). Only 9% reported that they never suspended any activities.

“There was no one buying or consuming marine resources. At the beginning of the pandemic we stopped everything. We closed the processing plant and stopped production”
Fisher and administrator, 51, Baja California.

Seven months after the confinement measures established by the federal government began¹⁶,

many of these activities have restarted (principally small-scale fishing and tourism). Thirty-seven percent have already resumed tourism and small-scale fishing, 25% have returned only to fishing, 20% have only resumed tourism and 3% have resumed sport fishing.

Contact with nature and perceptions of environmental change

Half of the interviewees perceive that, as a result of the suspension of activities there have been positive changes in their environment. These people, from 39 communities, have seen cleaner seas and beaches, and clearer water with less oil (due to less boat traffic). Some people even mentioned that they had never seen such beautiful beaches in their communities and consider that the lockdown gave the sea a rest.

“We have had very beautiful days that we have not seen in a long time”
Fisher and community ranger, 36, Quintana Roo.

On the contrary, 6% of the interviewees identified that as a result of the pandemic there have been changes that do not favor the environment, such as an increase in waste, mainly plastics and used masks. The remaining 44% did not notice changes

in their environment due to the pandemic, however, a couple of these people expressed concern about changes related to climate change (e.g. increases in water temperature and changes in currents) and recent meteorological phenomena affecting their fishing days.

Sighting of rare species or events at the sea, due to the lack of human activity, is something that was reported by 41% of the interviewees. They mentioned seeing rays, sharks, large fish, spawning sea turtles, birds, dolphins, killer whales, and sealions. Interviewees were asked whether they had seen changes in the amount of fishing resources because of the suspension of activities. Fifty-three percent believed that they had not changed significantly because of the pandemic, 23% believed that they have decreased and 20% that they had increased. The remaining 4% are not sure if there had been a change.

Sustainability and conservation actions in fishing communities

In 51 of the 62 coastal communities consulted for this report, sustainable fishing and marine conservation actions were being carried out before the pandemic. Sixty-seven percent of the interviewees participate in those activities (88% of women and 62% of men consulted). The remaining 33% did not carry out sustainable fishing or conservation actions. Of the people who take part in this kind of actions, half of them (57%) participated in only one activity. The

other half (43%) participated in more than one activity simultaneously.

The interviewees were consulted about the activities they carry out in their communities for sustainable fishing and marine conservation. They mentioned conducting research in collaboration with universities, beach cleanups, underwater, fishery and oceanographic monitoring, and enforcement.

Of the 108 interviewees who undertook on these activities (one or more), 83 people participated in enforcement, 63 people in beach cleanups, 42 people in underwater monitoring, 37 participate in fishery monitoring, 18 participate in oceanographic monitoring and only one person collaborated in research with a university.

“I have always instilled care for the sea in my co-workers. I tell them that if we do not take care of it, who will?”
Fisher, 49, Yucatán.

Despite the ongoing contingency measures, 44% percent of interviewees continued participating in these activities, 21% had suspended their sustainability and conservation activities at the beginning of the pandemic but have now resumed them; and the remaining 35% stopped them completely.

One of the main concerns of the fishing sector, which threatens fishing sustainability and marine conservation, is illegal fishing. Of all interviewees, 47% reported that illegal fishing had not changed as a result of the pandemic and has always existed in their communities. Twenty-eight percent thinks that

it had increased, 19% that it had decreased and 6% do not know.

“While the legal stay at home, the illegal are out fishing”
Administrator, 30, Baja California.

As a solution to this problem, enforcement activities were carried on during the contingency in 46 communities. They monitored their fishing grounds, the beach and piers, as well as conducted night patrols. In these communities, enforcement is led by fishing cooperatives, with some participation from government agencies (CONAPESCA, the Federal Attorney for Environmental Protection -PROFEPA-, the Navy -SEMAR- and CONANP). On the contrary, 44% of those interviewees mentioned that in their communities no enforcement had been undertaken, and 4% do not know if these activities had been carried out.

More than half of the interviewed (64%) mentioned that enforcement in their communities is carried out with the same frequency as before COVID-19, 25% mentioned that it is less frequent, and 11%, more frequent.

Findings in social media

Of the 1,334 analyzed messages on social media, only 5% were related to COVID-19, environment, and fishing. The low percentage of messages that contain the three key concepts for this report reflects that COVID-19 is no longer talked about as much as previously. This may be due to the fact that the pandemic is beginning to be “normalized” in Mexico.

The words that were repeated the most in the messages were “Hurricane”, “COVID-19” and “Delta”. Other words found in most messages were: fishing, biodiversity, storm Gamma, fisher, tourism, actions, protect, crisis and waste. During the social media monitoring and interview application, two natural phenomena: tropical storm Gamma and hurricane Delta, affected the southeast region of Mexico. This was reflected in the messages found

on social media. The fishers shared both original content on the effects of these phenomena to their communities, as well as weather forecasts and safety measures published by official media. Profiles related to the fishing and environmental sector⁹ also shared messages about these events.

Seventeen percent of the analyzed messages referred to actions and solutions from the fishing sector, 9% to food and the rest to diverse topics such as economy, education, gender, memes, politics, health and very few messages about COVID-19.

Of all evaluated messages, 98% were original content from their own profiles/accounts on social media. Only 2% were shared messages from other profiles.

Messages shared by the profiles related to the fishing and environmental sector addressed the topics of COVID-19, tourism, health, economic reactivation, awareness about beach cleanups and ecosystems, waste collection, as well as storms Gamma¹⁷ and Delta¹⁸ (civil protection advice and safety recommendations).

Only 1% of the evaluated messages spoke about the resumption of activities (fishing, enforcement, tourism, and beaches reopening). There were, however, no messages about safety measures to prevent COVID-19 infections during the economic reactivation, nor

were messages about conservation strategies and sustainability practices found in the context of the *new normal*. Only 1% of the messages expressed a concern about waste management (waste and recyclable materials collection) and better use of water and electricity. Fishers also expressed their concern about coastal pollution, ecosystem degradation, as well as the importance of beach cleanup days and sustainable fishing. Mentions of enforcement to combat illegal fishing were not found in any of the messages. Neither was this issue found on the profiles of government agencies linked to the fishing sector.

Recommendations for sustainable fishing in the *new normal*

Right to information. About half of the interviewees carried out activities within a protected area and reported little contact with the government agencies that manage these areas to provide advice and information during the contingency. In the context of the *new normal* these agencies have an important role to play advising the fishing communities about the resumption of their economic activities (fishing and tourism) in a safe way, without neglecting sustainability.

Technology as an ally during the pandemic. Fishers perceive that government agencies who stopped field work due to COVID-19, have not made use of technological tools to approach them during the contingency. We recommend incorporating digital communication strategies to maintain communication with and between coastal communities.

Economic, inclusive, and sustainable reactivation. It is essential to include sustainable use of natural resources in the economic reactivation strategies. Likewise, it is necessary to develop safety protocols applicable to small-scale fisheries. These strategies require close collabora-

tion between the fishing sector, government, civil society organizations and researchers. Efforts should be united, taking advantage of the creativity and resources available for the economic reactivation of small-scale fisheries with a vision of sustainability and inclusion.

Illegal fishing. Fishers are aware of the importance of the protection of fishery resources. In some cases, fishing communities implement programs to care for their resources. However, in most parts of the country, illegal fishing is an issue that has become more prevalent during the pandemic, which discourages fishing organizations from developing sustainable fishing and conservation efforts. Supporting and coordinating with government agencies to collectively implement actions should be a priority to solve this problem.

In COBI, we continue to raise the voice of small-scale fishers in Mexico for an inclusive and sustainable economic reactivation, to counter the effects of COVID-19. Our final report will focus on the principles for fishing in 2021 and will be distributed during the first week of December.

1 DOF. 2020. Acuerdo por el que se establecen acciones extraordinarias para atender la emergencia sanitaria generada por el virus SARS-CoV2.

https://www.dof.gob.mx/nota_detalle.php?codigo=5590914&fecha=31/03/2020

2 Fernández-Rivera Melo F.J., L. Rocha-Tejeda, G.A. Cuevas-Gómez, E. Gastélum-Nava, J. B. Sánchez-Cota, N. Goldman, M.J. Espinosa-Romero. 2018. Criterios internacionales de sustentabilidad pesquera: ¿Dónde estamos y qué necesitamos para mejorar? *Ciencia Pesquera* 26(2): 65-88.

3 <https://www.gob.mx/conapesca/documentos/zonas-de-refugio-pesquero>

4 <https://cobi.org.mx/todo-sobre-coronavirus-covid-19/>

5 The interviews were performed by COBI with the support of Smartfish A.C., The Nature Conservancy, A.C., and Gente Sustentable, A.C.

6 Solid waste (face masks, gloves, bags) and liquid waste (chlorine and other disinfectants).

7 Baja California, Baja California Sur, Campeche, Chiapas, Colima, Nayarit, Oaxaca, Quintana Roo, Sinaloa, Sonora, Tabasco, Tamaulipas, Veracruz y Yucatán.

8 Abalone, clam, squid, penshell, shrimp, crab, crown conch, conch, sea urchin, swimming crab, spiny lobster (California and Caribbean), seaweed, jellyfish, oyster, finfish, ornamental fish, sea cucumber, octopus, shark, yellowtail (mariculture) and sportfishing.

9 CONANP, CONAPESCA, Parque Nacional Archipiélago Espíritu Santo, Parque Nacional Arrecifes de Cozumel y APFF Isla Cozumel, Parque Nacional Bahía de Loreto, Parque Nacional Cabo Pulmo, PROFEPA, PRONATURA Noroeste, Reserva de la Biosfera Caribe Mexicano, Secretaría de Agricultura, Ganadería, Recursos Hidráulicos, Pesca y Acuicultura (SAGARHPA) Sonora, Secretaría de Economía Sustentable y Turismo de Baja California, Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT), Secretaría de Pesca y Acuicultura Sustentables de Yucatán (SEPASY).

10 <https://www.biodiversidad.gob.mx/region/areasprot>

11 Friesen-Pankratz, B., Gregoria Bautista, L., Maza, Z. 2011. El Manejo de los residuos en una comunidad rural de México: Prácticas actuales y planes futuros. Conference: Hacia la sustentabilidad: Los residuos sólidos como fuente de energía y materia prima

12 https://cobi.org.mx/wp-content/uploads/2020/09/COBI_Reporte-COVID-19-y-Salud-Espanol_sept.pdf

13 Instituto Nacional de Ecología y Cambio Climático (INECC). 2020 Martínez Arroyo A., Ruíz Suárez L.G., Gavilán García A., Ramírez Muñoz T., Huerta Colosia D. Manejo de residuos durante la emergencia sanitaria por COVID-19. PP-33.

14 DOF. 2020. Acuerdo por el que se establecen las medidas preventivas que se deberán implementar para la mitigación y control de los riesgos para la salud que implica la enfermedad por el virus SARS-CoV2 (COVID-19).

15 <https://cobi.org.mx/wp-content/uploads/2020/06/COBI-Reporte-1-Covid19-y-Pesca-Espanol-1mayo.pdf>

16 DOF. 2020. Acuerdo por el que se establecen los lineamientos técnicos específicos para la reapertura de las actividades económicas:

https://www.dof.gob.mx/nota_detalle.php?codigo=5594138&fecha=29/05/2020

17 <https://www.gob.mx/cenapred/articulos/se-acerca-la-tormenta-tropical-gamma>

18 <https://www.gob.mx/cenapred/articulos/el-huracan-delta-se-dirige-a-quintana-roo>