

The Impact of COVID-19 on Livelihoods and Resource Use in the Case of Whale Shark
Tourism in Oslob, Cebu, Philippines

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Abstract

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Through an analysis of interviews with Tan-awan Oslob Sea Wardens and Fishermen's Association (TOSWFA) members, government and elected officials, and community members, this analysis aims to identify the connection between a pandemic-related drop in whale shark tourism and changes in livelihoods, fishing effort, destructive fishing, and protection of whale sharks and marine reserves in Oslob. An analysis of semi-structured interviews with 29 respondents in 2021 suggests that the pandemic has had a significantly negative economic impact on Barangay Tan-awan and surrounding communities. Many fishers reverted back to fishing and construction in the absence of tourism. Welfare of community members also decreased, with higher levels of food insecurity and debt. While the financial impacts were

significant, with a decrease in whale shark tourism ticket sales of 79% from 2019 to 2020, and the majority of respondents indicating a decrease in personal income, the perceived impacts on the environment were not as clear. Many respondents perceived that local fishing effort had increased with more fishers than pre-pandemic, but they indicated that the levels of marine resource protection were adequate. Despite this, the majority of respondents expressed a desire for more environmental protections, underscoring a possible connection between well managed Marine Protected Areas (MPAs) and additional socio-economic benefits.

I. Introduction

Tourism and the Environment

Tourism is one of the most important industries contributing to the world economy (Behusdi, 2020). In 2019, it was the third largest export category in the world (UNWTO, 2022a), contributing \$3.5 trillion USD to the global economy and amounting to 4% of the world GDP (UNWTO, 2021b). 1.5 billion international tourists arrived at destinations around the globe in 2019 (UNWTO, 2021a). Tourism can significantly contribute to countries' development (Mazumder et al., 2006), but many times the economic growth is at the expense of the environment. For example, Teng et al. (2021) found that, while both international and domestic tourism increased per capita GDP in China from 2006 to 2017, it also led to higher CO₂ emissions from the tourism industry. A causality analysis from Tan et al. (2014) found similar results for Singapore. As Singapore's economy grew from 1975 to 2011, CO₂ emissions increased significantly. These negative impacts are not limited to increased CO₂ emissions.

Tourism can lead to increased pollution, discharges into the sea, habitat loss, increased pressures on vulnerable species and communities, and increasing competition for resources (Sunlu, 2003; Spalding et al., 2017). Arbulú et al. (2015), for example, found that more tourist arrivals contributed to a significant increase in municipal waste generation. Excess waste, over tourism, and environmental degradation caused by tourists has even led to temporary closures of destinations such as Maya Bay in Thailand (Cripps, 2022) and Boracay Island in the Philippines (Villamore, 2018). While regulations are in place to prevent sewage, wastewater, and other pollution from entering the coastal waters of the Philippines, especially in areas that are classified as tourist zones or marine parks (Hüttche et al., 2002), water quality standards are not always met. In Hüttche et al. (2002), the authors presented a case study from 1997 that looked at

the water quality of coastal waters off of Boracay. Despite existing regulations, it was found that the Philippine water quality standards were not met as there was excess pollution in the water. Hüttche et al. (2002) proposed that hotel and resort operators should work cooperatively with the local government unit (LGU) to monitor water quality and that regular monitoring schedules should be implemented, especially during periods of high tourist visitation. This increased monitoring could detect potential sources of pollution and ultimately reduce the amount of pollution reaching coastal waters.

Individual tourist behavior can also directly impact the environment. Snorkelers and divers can physically damage coral reefs by kicking corals (Davenport & Davenport, 2006) or disturbing silt which can suffocate corals (Hawkins et al., 1999). Mohamed et al. (2015) found that locals on Pangkor Island, Malaysia, perceived that the largest negative environmental impacts came from inexperienced snorkelers who damaged corals, although this behavior can be mitigated to an extent with intervention from dive guides (Barker & Roberts, 2004). Tourists have also been seen removing organisms from their natural environment. Huang et al. (2017) observed tourists taking corals and snails from marine reserves in China as souvenirs, while Gossling et al. (2004) found that tourists in coastal areas of Zanzibar participated in shell collecting and trade, amounting to 13 tons of shells being exported in 2002. The removal of these organisms, including bivalves and gastropods, can have negative impacts on marine ecosystems (Gossling et al., 2004). Additionally, tourists' choice in sunscreen can have negative impacts on corals. McCoshum et al. (2016) subjected reef organisms, including corals, anemones, and flatworms, to commercial sunscreen pollution and found that the organisms showed reduced population growth compared to control groups. This suggests that organisms located in or near tourist sites may be at a higher risk of population and colony decline (McCoshum et al., 2016).

While these negative impacts cannot be ignored, tourism can support positive environmental and conservation outcomes.

Tourism can provide alternative sources of income and employment, as well as finance protected areas and incentivize protection of wildlife (Cadiz & Calumpang, 2000; Jalani, 2012; Lowe & Tejada, 2019). Proceeds from park fees can go towards protected area management, enforcement, and natural heritage sites (Topelko & Dearden, 2005; Catibog-Sinha, 2010; Apdohan et al., 2021). The economic benefits of wildlife tourism, such as shark diving, extend to destinations around the world, bringing in millions of dollars annually (Cagua et al, 2014; Rowat & Engelhardt, 2007). This can lead to live sharks being more valuable than dead sharks. A 2017 report found that the value of a living shark in Florida was worth significantly more than a dead shark due to dive tourism (Fedler, 2017), and similar value was ascribed to live sharks by Gallagher and Hammerschlag (2011). Notably, if the local community does not benefit from tourism that preserves sharks, dead sharks can be more valuable because of their meat and fins. This was the case in Cabacongan Marine Protected Area on Cabilao Island, Philippines, where sharks were worth more to the community dead because they did not receive any benefit from protecting sharks for dive tourists (Green, 2002). Oracion et al. (2005) found similar tensions between the local community of Mabini in the Philippines and the tourism sector, where resort owners benefited the most from tourism in MPAs and local fishers benefited the least, having less access and MPA control than the resort owners. An MPA in Zanzibar created conflict in a similar way, by creating inequality between livelihoods, access issues, and power differentials between hotel management and local people (Gustavsson et al., 2014). Communities, fishers, and the tourism sector must share benefits in order to outweigh potential disadvantages of MPAs, such as loss of fishing areas, and avoid conflict (Lopes et al., 2015).

If costs and benefits of tourism are shared among both the community and the tourism sector, the economic benefits can extend outwards to whole communities through alternative livelihood options (Cusack et al., 2021). Tourism can stimulate local economies and create ripple effects throughout the transportation, accommodation, and food industries, benefiting others in the community and relieving potential environmental pressures (Topelko & Dearden, 2005; Lowe et al., 2019; Cochrane, 2009). In Palawan, Philippines, a study at the Puerto Princesa Subterranean River National Park found that livelihoods switched from fishing and non-timber wood usage to ecotourism activities (Jalani, 2012). Notably, while local people thought ecotourism was beneficial, it was not the primary motivator. Tourism offered a higher compensation, more work opportunity, and city development, which were viewed as the primary positive impacts. Environmental benefits were secondary, but the shift did decrease environmental pressure (Jalani, 2012).

Although it is not always the case, tourism can lead to increased environmental knowledge, pro-conservation intentions, and positive changes in tourist behavior (García-Cegarra & Pacheco, 2017; Zelezny, 1999; Tisdell & Wilson, 2001). It can evoke emotions that foster feelings of responsibility towards wildlife and their habitat (Jacobs & Harms, 2014), creating empathy and generating support for conservation-focused behavior (Zeppel, 2008) and policies (Wilson & Tisdell, 2003). For example, tourism can motivate people to donate directly to conservation through symbolic adoptions of wildlife or zoo animals (Tisdell & Wilson, 2001; Colléony et al., 2017; Fančovičová et al., 2021). Interestingly, choices in what species to symbolically adopt, and how much money people were willing to spend, were primarily driven by emotional, as opposed to ecological, considerations (Colléony et al., 2017). Notably, direct, close, and intense contact with animals in their natural habitat, such as in-water encounters, has

the most potential to positively impact changes in emotions, behaviors and attitudes (Zeppel & Muloin, 2008).

Additionally, tourism can contribute to reliable research and data collection (Gallagher & Hammerschlag, 2011) through tourist participation in photo identification and shark counts (Vianna et al., 2014; Dobson et al., 2005). A study comparing datasets of shark counts at dive sites in Palau found that the numbers generated by dive guides were similar to those generated by acoustic telemetry tags (Vianna et al., 2014). These results suggest that a citizen science approach can be a cost-effective alternative to collect data and monitor wildlife populations (Vianna et al., 2014), contributing to research efforts that help maintain healthy ecosystems and animals (Davies et al., 2012; Araujo et al., 2017).

These positive outcomes cannot be reached without a healthy environment and healthy animal populations. Protecting natural areas is crucial for keeping nature tourism and marine recreation beneficial and viable (Cusack et al., 2021; Roe et al., 2015; Mustika et al., 2020). Tourists want to have encounters in pristine settings with healthy wildlife, which can result in them willing to pay higher prices and contributing to positive outcomes even more (Arcos-Aguilar et al, 2021). This desire for pristine environments, however, can lead to conflict with local communities. On Apo Island in the Philippines, there has historically been tension between dive tourists and local fishers. Divers have been accused of chasing the fish away and damaging the reef, while fishers have been accused of over-fishing and depleting the reef (Olivier, 2007). In addition to that, divers have been found destroying fish traps, freeing the fish inside and rendering the traps useless. This leads to further conflict between divers and locals as it interferes with fishers' livelihoods (Olivier, 2007). This type of interaction can also negatively impact the tourist experience, as many divers indicated in Olivier's study (2007). If tourists have a negative

experience, they are typically willing to pay less (Uyarra et al., 2010), so there is incentive to create a positive tourist experience, which could be to the detriment of local people. Another consideration is that tourists who travel to particular regions to see specific types of wildlife, for example, whale sharks in the Philippines, are usually higher spenders (Jones et al., 2009). However, this revenue is not always distributed evenly. Economic leakage can occur due to foreign ownership of tourism assets or lack of local capital, and it is one of the reasons that tourism does not always produce desired local economic development (Lacher & Nepal, 2010). If tourists are primarily paying foreign enterprises, the incentive for the local community can be decreased as they are not receiving as many benefits.

The relationship between tourism and the environment is complex, complicated, and not without controversy. Tourism can contribute to overcrowding, pollution, environmental destruction, and conflict between tourists and communities, excluding fishers from any potential benefits (Fabinyi, 2010). Conversely, it can also lead to positive outcomes through increased environmental knowledge, contributions to research, and changes in tourist behavior and attitudes. In order to reach more positive outcomes, considerations must be made to ensure that tourism is carried out in an equitable and environmentally sustainable way.

Tourism in the Philippines

Tourism development has been listed as a priority area for the Philippine government (JICA, 2012) with particular emphasis on further developing sun and beach tourism, nature-based tourism, cultural tourism, and marine and diving tourism (Philippines Department of Tourism, 2016). The Philippine Statistics Authority (2021) has indicated that tourism plays a large role in the social, economic, and environmental development of the country, employing 5.72 million people in 2019 and contributing to 11.9% of total employment. Foreign exchange

from tourist expenditure, investment, and revenue has driven economic growth in the Philippines (Philippine Statistics Authority, 2017), and Republic Act 9593, also known as the Tourism Act of 2009, lists tourism as an “industry of national interest and importance” and “an indispensable element of the national economy” (Philippine Statistics Authority, 2017: xxix). It emphasizes that tourism development is an important and shared responsibility at both the national and local levels (Philippines Department of Tourism, 2014), encouraging Local Government Units (LGUs) to participate in preparing and implementing tourism development plans.

In 2018, coastal and marine tourism made up 25% of the blue economy in the Philippines, making it the largest sector, followed by fisheries and aquaculture at 20% and manufacturing at 19% (Zafra, 2021). This type of tourism is one of the fastest growing sectors (Ocean Health Index, 2022a), but environmental sustainability is a large concern as the Philippines is considered a biodiversity endangered country (JICA, 2012) with many threatened species. Some of these threatened species have become tourism icons (Catibog-Sinha, 2010), and several appear on the country’s currency, such as the whale shark on the 100 Philippine peso bill. Catibog-Sinha (2010) claimed that these icons have helped to bring success to the Philippine tourism industry due to their charisma and high publicity value. Additionally, the Ocean Health Index has given the Philippines a perfect score for “Tourism and Recreation” the last five years, indicating that they are successfully maintaining marine and coastal tourism areas (Ocean Health Index, 2022b). The tourism industry made up 12.8% of the Philippines’ GDP in 2019, with combined inbound and domestic tourism generating 3.74 trillion PHP (~ \$72 billion USD) (Philippine Statistics Authority, 2021).

Tourism and COVID

Historically, crises have had an impact on tourism, and the industry is particularly prone to these shocks (Era & Rosario, 2020). Epidemics, natural disasters, civil unrest, and economic crises can all negatively impact tourism development in both the short and long term (Zeng et al., 2005), tending to dramatically reduce the number of incoming tourists, especially foreign tourists. The SARS epidemic of 2003 rapidly reduced international arrivals by 2 million (UNWTO, 2022b), with Asian countries experiencing the greatest decrease. During the 2003 “Golden Tourism Week of May,” Beijing had a reduction of 95.5% of visitors and 99.1% of tourism related income. One of the national parks in Shaanxi Province received 1000 tourists during that week, which was a 95% decrease from the 20,000 visitors the year before (Zeng et al., 2005). Events such as the early 2000 Bali bombings, the 2004 Indonesian Tsunami, the SARS epidemic, and the Asian financial crisis have all disrupted the tourism sector (Hitchcock et al., 2009). When those crises struck, they reduced visitor numbers and dramatically altered the livelihoods of people engaged in the tourism industry. After the Bali bombings, for example, individuals who were previously employed in the tourism industry were forced to rely more on natural resources in order to survive. Tourism had alleviated pressure on those resources before, but when tourism was absent, they were exploited again (Cochrane, 2009).

The COVID-19 pandemic is an unprecedented crisis that has completely disrupted global tourism, unlike any crisis before. In 2020, international tourist arrivals dropped by 1.1 billion, a decrease of 74% (UNWTO, 2021a). Comparatively, the global economic crisis of 2009 resulted in a decrease of 37 million international tourist arrivals, a 4% decrease at that time; the SARS epidemic in 2003 resulted in a decrease of 2 million international tourist arrivals, a 0.4% decrease at that time (UNWTO, 2021a). Due to the pandemic, international tourism declined to

levels of the early 1990s (UNWTO, 2022b), with multiple travel bans and lockdowns contributing to this decline (UNWTO, 2021a).

The Philippines recorded its first case of COVID-19 on January 30, 2020 (Era & Rosario, 2020), and the World Health Organization declared COVID-19 a global pandemic in March 2020. This declaration brought about the start of pandemic-related restrictions, including stay-at-home orders, social distancing, and varying levels of quarantine (Macusi et al., 2022). These restrictions limited the ability for tourists to travel, and as a result, combined inbound and domestic tourism in 2020 dropped 81.6% to 689.48 billion PHP (~ \$13 billion USD) from the previous year's 3.74 trillion PHP (~ \$72 billion USD) (Philippine Statistic Authority, 2021). Contrasted to the previous year where tourism contributed 12.8% of the country's GDP, tourism contributed only 5.4% to the GDP in 2020 (Philippine Statistics Authority, 2021). It is within this dramatic context that we look at a particular tourism business, Oslob Whale Sharks (OWS), which is located in Barangay Tan-awan, Oslob, Cebu.

Site Description

Barangay Tan-awan, which is within the municipality of Oslob, is located in Southeast Cebu, Philippines, next to the Bohol Strait (see Figure 1). This coastal and rural barangay, around 3 hours from Cebu City, is known for world famous whale shark interactions, which have become a main source of income for many of the people living there. At the end of 2020, there was a total population of 1,729 people, 52% female, 48% male, split among a total of 411 households (Barangay Tan-awan Development Plan, 2021).

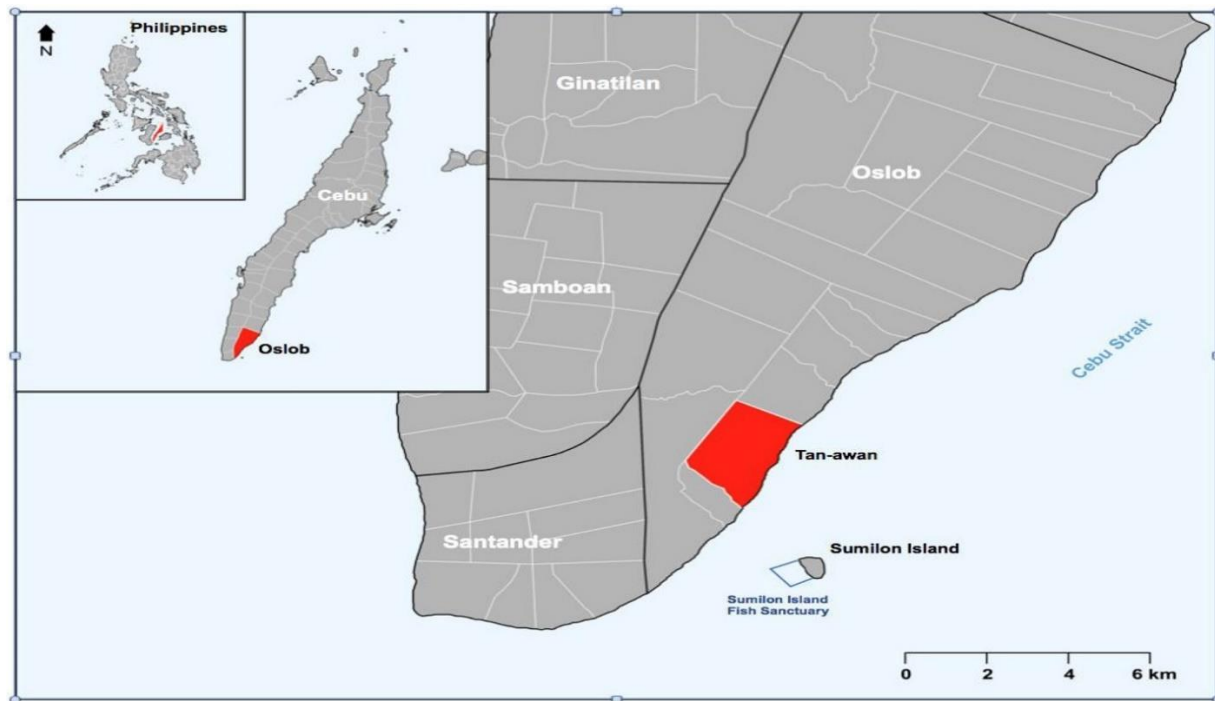


Figure 1. Map of Barangay Tan-awan within the municipality of Oslob, Cebu, the Philippines (Lowe & Tejada, 2019: 82).

Since 2011, tourists have come from all over the world to Oslob to swim with endangered whale sharks (*Rhincodon typus*), which are protected in the Philippines under the 1998 Fisheries Administrative Order No. 193. This order “prohibits the take, catch, sale, purchase, transport, or export of whale sharks (and manta rays), whether dead or alive. It also prohibits the wounding or killing of whale sharks” (Craven, 2012: 3), which has historically been a problem. Previously, whale sharks were hunted in large numbers in the Philippines. The sharks would be speared and butchered by local hunters, who then sold the meat and fins to buyers in Asian markets, such as Singapore and China (Craven, 2012; Fairweather, 1999).

Oslob Whale Sharks (OWS), a community-based dive tourism business started by a group of fishers that later formed the Tan-awan Oslob Sea Wardens and Fishermen's Association (TOSWFA) (Lowe & Tejada, 2019), runs the tourist operation. Provisioning, which is the act of feeding wildlife, takes place year-round from 6 AM to 1 PM daily, and because of this, it is one

of the few sites in the world where tourists are essentially guaranteed to see whale sharks (Penketh et al. 2021; Thomson et al., 2017). To engage in this activity, tourists pay 500 PHP (~ \$10 USD), which is a reduced rate that OWS has implemented during the pandemic for both foreign and domestic tourists. Pre-pandemic, there was a price differential where foreign tourists paid 1000 PHP (~ \$20 USD), and locals paid 500 PHP (~ \$10 USD). The average cost of global whale shark experiences is \$100 USD (Ziegler et al., 2019a), so even at previous prices of \$20 USD, OWS is one of the cheapest whale shark attractions in the world (Thomson et al., 2017; Lowe et al., 2019; Penketh et al. 2021). Once tourists have paid, they receive a briefing prior to entering the water, where they are told the rules of engagement with the whale sharks. This includes limits on the amount of people and time spent in the water, the type of boats allowed in the interaction area (nothing motorized), and minimum distances everyone needs to maintain from the sharks (Craven, 2012). The interaction area is approximately 480 m by 170 m (1,574 ft by 557 ft) (Penketh et al., 2021), and the tourists are allowed to swim around the whale sharks while the feeder boats lure the sharks past (as seen in Figure 2).

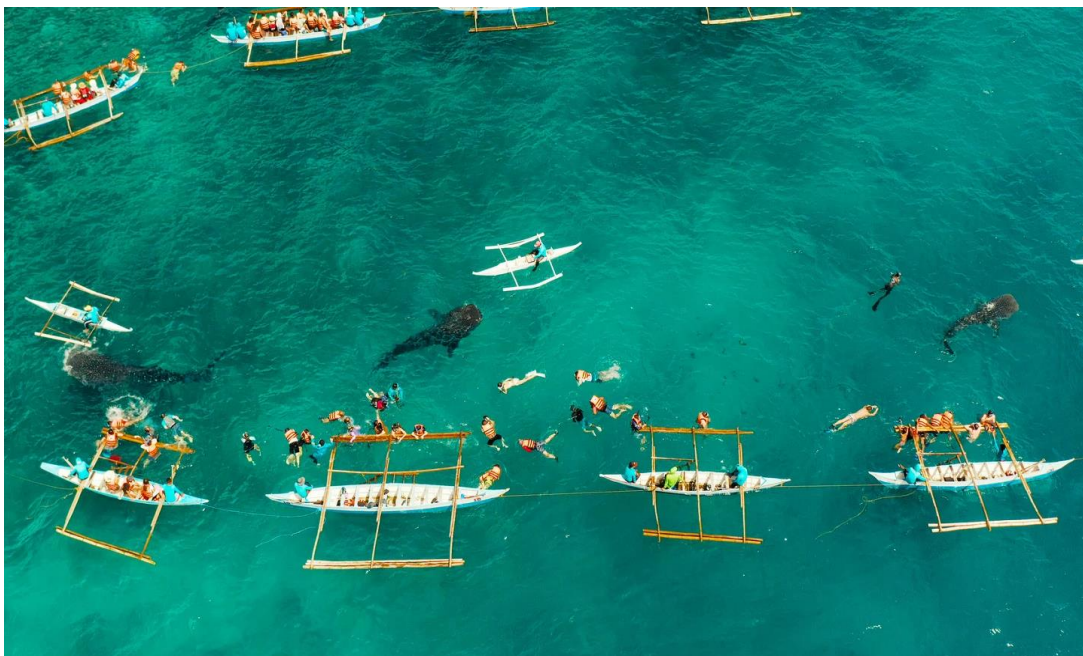


Figure 2. Whale shark interaction area. © Alexey Kornilyev / Alamy Stock Photo

Multiple ordinances have been passed in Oslob to protect the whale sharks, secure access to tourism for TOSWFA, and restrict access to the fisheries, resulting in the declaration of Tan-awan as a marine reserve (Lowe et al. 2019). One of the ordinances designates a sharing scheme between TOSWFA, the municipality, and the barangay (see Table 1).

Municipality of Oslob	30% of ticket sales
Barangay Tan-awan	10% of ticket sales
TOSWFA	60% of ticket sales

Table 1. Distribution of ticket sales

60% of income from the whale shark ticket sales goes to TOSWFA, where it is split up among its members according to their agreed upon sharing scheme; 30% goes to the municipality of Oslob; and, 10% is shared with the Tan-awan barangay general fund (Craven, 2012). Portions of the income that go to Oslob are used to support welfare and alternative livelihoods for many members of the community; finance five marine reserves; and, support the *Bantay Dagat*, or sea wardens, who complete sea patrols, enforce the ordinances, and protect the whale sharks (Craven, 2012; Lowe et al. 2019; Ziegler et al., 2018). Prior to OWS, many of the fishers in Tan-awan were living off around \$1 USD a day (Ziegler et al., 2018). Lowe et al., (2019) and Meekan & Lowe (2019a) found that the influx of tourism dollars created alternative livelihoods for 177 TOSWFA fishers, as well as economic and welfare gains for the people of Tan-awan and surrounding barangays. When interviewed in 2018, the Mayor of Oslob indicated that tourism revenue had allowed for livelihood programs that benefit the entire municipality, including improvements to hospitals, schools, and other infrastructure (Lowe et al., 2019). Respondents also perceived that the tourism contributed to reduced fishing pressure and positive effects on the diversity, abundance, and biomass of fish living in and around the tourism-funded marine reserves (Lowe et al., 2019; Meekan & Lowe, 2019a). The head of the *Bantay Dagat*, for

example, stated that whale shark tourism improved the status of corals, fish, and whale sharks, and the mayor indicated that the financial benefits of OWS made people more aware that protecting the environment was essential (Lowe et al., 2019). Additionally, it was reported that new fishers did not replace the TOSWFA fishers that switched to tourism due to access restrictions and gear and vessel restrictions which made the area unattractive (Lowe & Tejada, 2019).

While the results of previous studies indicate that there are economic and perceived environmental benefits to whale shark tourism in Tan-awan, it is not without controversy. First and foremost, this tourist activity has raised concerns around the sharks' health. Whale sharks are listed as endangered by the IUCN with a declining population trend (Pierce & Norman, 2016), and they are protected under Philippine law (Craven, 2012). There are concerns around the ethics of provisioning (Thomson et al., 2017), and whether it alters the natural behavior of the sharks. While fish feeding is popular at tourist attractions around the world (De Paula et al., 2018), the actual impacts of provisioning are contested. Wen et al. (2018) found that some fish species at a tourism site in Taiwan had reduced wariness of divers and tourists, and De Paula et al. (2018) found that provisioning could change some fish behavior, cause habituation to humans, and impact distribution. Notably, these two studies did not look at whale sharks. Conversely, habituation to humans has occurred at whale shark aggregation sites where provisioning does not occur (Lowe et al., 2019), so it is unclear whether provisioning alone impacts habituation or if there are other factors. In regards to distribution and residency patterns, Thomson et al. (2017) found that the majority of sharks identified in Tan-awan over a three-year period were present intermittently, as opposed to every day, which suggested that there is minimal impact of provisioning on the movement of the whale sharks. To complicate matters, Thomson et al.

(2017) also found that the sharks that were observed to be hand-fed in Tan-awan had a longer mean residence time of 45 days, compared to sharks that were not hand-fed, which had a mean residence time of 22 days. This might suggest that hand feeding the sharks contributes to less movement; however, McCoy et al. (2018) found that the mean residence time of whale sharks at a non-provisioned aggregation site in Donsol, Philippines, was 50 days. This contradicts the idea that mean residence time increases with provisioning. Thomson et al. (2017) state that it is difficult to compare aspects of fitness between provisioned and non-provisioned whale sharks with our current understanding of whale shark behavior, and, like other scientists (Schlemmer et al., 2015), they call for more research.

Another concern around shark health, aside from possible disruption in distribution and movement patterns, is that there might be a link between provisioning and the frequency of scarring as sharks become habituated to boats. Thomson et al. (2017) found that there was no evidence to suggest that highly resident whale sharks, meaning those that frequented the tourism site in Tan-awan year-round with no evidence of seasonal movements or prolonged absences, suffer major injuries more frequently than less resident sharks. Penketh et al. (2021) found that, of 152 individual whale sharks at the tourist site in Oslob, 144 had at least one scar and 138 had more than one scar. Scarring patterns were then compared with whale sharks from Ningaloo, Seychelles, and Mozambique, and it was found that the sharks in Oslob had the highest frequency of scarring. Penketh et al. (2021) state that the difference could be due to methodological differences in collecting the scarring data. The sharks in Oslob were observed for a longer period of time and at a closer distance, which could have impacted the identification of scars. Given that motorized boats are not allowed in the interaction area in Tan-awan (Craven, 2012), it is doubtful that the majority of observed scarring is occurring at the provisioning site.

Additionally, it has been found that whale sharks in the Philippines in general, including sharks that are not at the provisioning site, have higher rates of scarring when compared to other aggregations around the world (McCoy et al., 2018; Penketh et al., 2021). This suggests that provisioning may not be the primary factor contributing to scarring of whale sharks in the Philippines. While the frequency of scarring is higher in Oslob compared to Ningaloo, Seychelles, and Mozambique, Penketh et al. (2021) indicate that it is difficult to determine whether the injuries actually impact survival rates or reproductive fitness. They think that it is unlikely the scarring will have direct negative impacts, but how scarring impacts long-term health is unknown (Penketh et al., 2021).

In addition to concerns around shark health, there are concerns around tourist compliance with local ordinances and overcrowding (Legaspi et al., 2020). When it comes to tourists following regulations around swimming with the sharks, Legaspi et al. (2020) found that, in 75.1% of the surveys conducted, at least one swimmer was too close to the sharks. Tourists holding onto the boats were observed to be too close in 84.9% of the surveys, and there was a mean of 17.3 tourists within 10 m from one shark. The maximum number according to local ordinance is six people per shark (Legaspi et al., 2020). Schleimer et al. (2015) also found that there was low tourist adherence to regulations. The *Bantay Dagat* are responsible for enforcing on-water compliance with these regulations (Lowe et al., 2019), and their presence has been a source of deterrence (Craven, 2012), but tourist compliance could be better. This issue is compounded by perceived crowding. Ziegler et al. (2019a) surveyed tourists and found that there were high levels of perceived crowding at the tourism site. Crowding may not be just a perception, as the tourist site had a minimum average of almost 1100 visitors a day in 2019 (see Table 2). In 2018, OWS met with members of the national and provincial government to

determine a limit to the number of visitors each day. They agreed that tourist numbers would be capped at 800 visitors a day (Lowe & Tejada, 2019). This cap did not go into effect because local stakeholders were concerned about the impact it would have on their income (Ziegler et al., 2019b). The average visitors per day exceeded the proposed limit every month in 2019.

Month (2019)	Average Visitors per Day
January	1427
February	2018
March	1535
April	1695
May	1543
June	1526
July	1833
August	1995
September	1329
October	1315
November	1111
December	1090

Table 2. Average visitors per day by month in 2019.

Increased visitor numbers have contributed to increased pollution and waste (Lowe & Tejada, 2019), but OWS has taken some steps to negate these impacts, such as installing new septic tanks and prohibiting the use of soaps and shampoos in beach showers (Lowe & Tejada, 2019). Tan-awan also employs street sweepers and janitors to help with increased waste (Lowe et al., 2019).

There are also concerns around increased nutrients in the water and the impact on coral health at the tourist site. Wong et al. (2019) found that there were excess nutrients at the tourist site compared to a reference site located off the coast of Barangay Mainit, where whale shark tourism is absent, suggesting that tourism has degraded the reef. They also found that the mean coral density and coral genetic diversity was significantly higher at the reference site, but differences in benthic composition, coral disease and compromised health states were not statistically significant. Wong et al. attribute their results to high variation among each site, and they call for more data, stating that their sample size was small (2019). Lowe et al. (2019) dispute the findings of Wong et al. (2019), because the conclusions were made on the basis of single sampling sites, which they argue cannot capture the patterns of degradation and recovery that may have been taking place during the study period. Lowe et al. (2019) also suggest that the sample size was inadequate. This has led to uncertainty about the impacts of tourism on coral reef health in Oslob, and calls for more research (Wong et al., 2019; Lowe et al., 2019).

One of the other concerns surrounding whale shark tourism in Oslob is that the benefits are not evenly distributed. In order to work in whale shark tourism, you must live in Tan-awan and be associated with TOSWFA (Ziegler et al., 2019b). The 177 fishers in TOSWFA represent less than 1% of the municipal population and Tan-awan represents 5%, yet TOSWFA and Tan-awan keep 70% of whale shark tourism revenue (Ziegler et al., 2019b). Additionally, when whale shark tourism originally started in Tan-awan, other barangays wanted to feed whale sharks (Craven, 2012). The Mayor of Oslob at the time did not want that, and ultimately, whale shark provisioning was restricted to Tan-awan, resulting in unequal distribution of benefits and conflict among the broader municipality (Ziegler et al., 2019b).

Despite the controversies, an estimated 2.2 million visitors have participated in whale shark tourism in Tan-awan from 2012 to 2019 (see Figure 3), generating millions of dollars in ticket sales over the past several years (see Table 3 and Table 4).

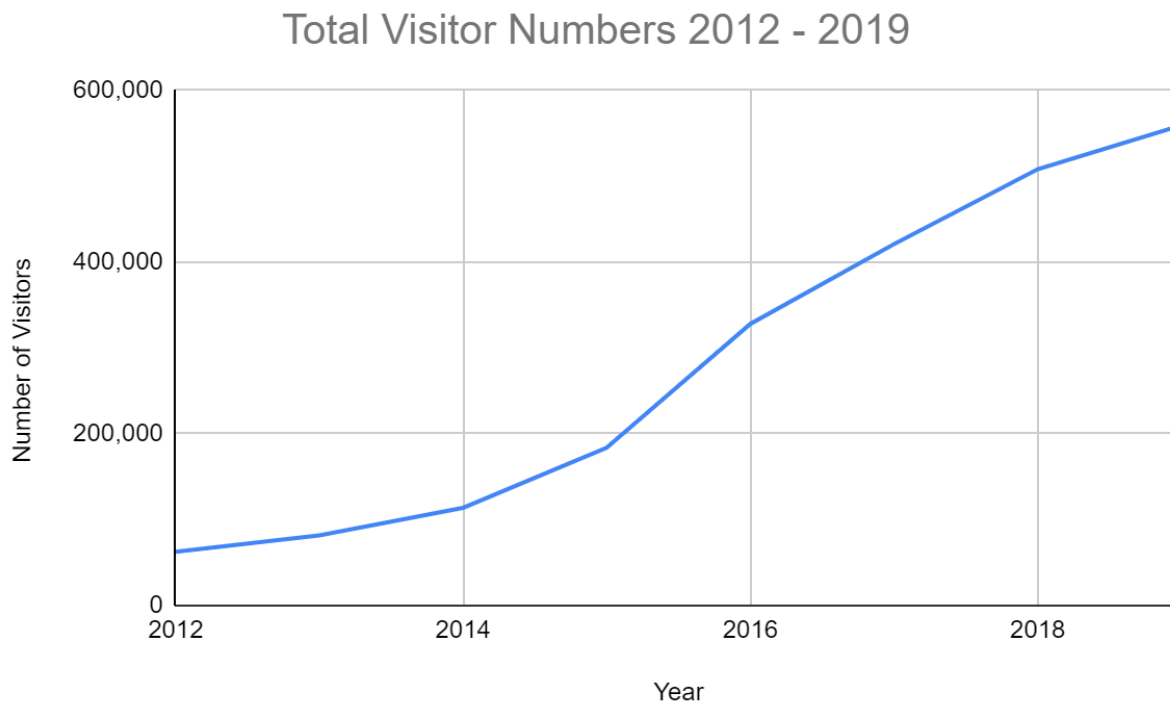


Figure 3. Combined number of domestic and foreign visitors who participated in whale shark watching from 2012-2019. No data was available for 2020.

	2012	2013	2014	2015	2016	2017	2018	2019	2020
60% TOSWFA	39,902,177	55,466,311	84,860,362	134,116,878	198,768,084	253,934,622	319,942,710	365,416,740	73,854,042
30% Oslob	19,951,089	27,733,155	42,430,181	67,058,439	99,384,042	126,967,311	159,971,355	182,708,370	36,927,021
10% Tan-awan	6,650,363	9,244,385	14,143,393	22,352,813	33,128,014	42,322,437	53,323,785	60,902,790	12,309,007

Table 3. Ticket sales (Philippine Peso) from whale watching in Oslob, 2012 to 2020. Revenue was reconstructed using audit records for the Municipality of Oslob, provided by the Republic of the Philippines, Commission on Audit. Audit records indicated the 30% share of ticket sales that the municipality of Oslob received. The remaining shares for TOSWFA and Tan-awan were then calculated.

	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total in PHP	66,503,629	92,443,851	141,433,936	223,528,130	331,280,140	423,224,370	533,237,850	609,027,900	123,090,070
Estimated USD	\$1,575,169	\$2,178,225	\$3,186,167	\$4,912,706	\$6,975,787	\$8,397,309	\$10,126,051	\$11,759,566	\$2,480,654
Average Conversion Rate	42.22 PHP to 1 USD	42.44 PHP to 1 USD	44.39 PHP to 1 USD	45.50 PHP to 1 USD	47.49 PHP to 1 USD	50.40 PHP to 1 USD	52.66 PHP to 1 USD	51.79 PHP to 1 USD	49.62 PHP to 1 USD

Table 4. Total ticket sales generated from whale shark watching in Oslob, 2012 to 2020. Conversion to USD was estimated off of the average PHP to USD conversion rate for each year, retrieved from the Philippines Central Bank. No data was available for 2021.

There has been an almost even split of total domestic to foreign tourists over the years, although in 2018 and 2019 there were higher numbers of foreign tourists (see Figure 4) (Oslob Statistics, 2020). While the Oslob Tourism Office did not have tourist numbers for 2020, we do have the income generated by OWS, which dropped significantly due to the pandemic. OWS went from generating around ~ \$11.8 million USD in 2019 to ~ \$2.4 million USD in 2020, a nearly 80% decrease (see Figure 5).

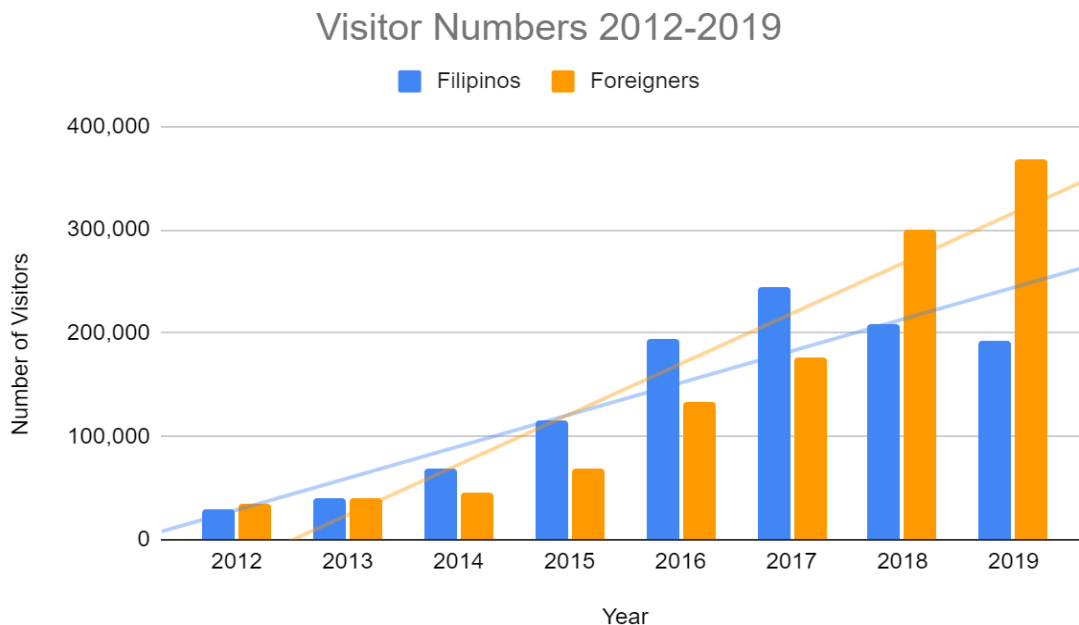


Figure 4. Number of visitors who participated in whale shark watching from 2012 to 2019. Data collected from Oslob Tourism Logbooks. No data was available for 2020.

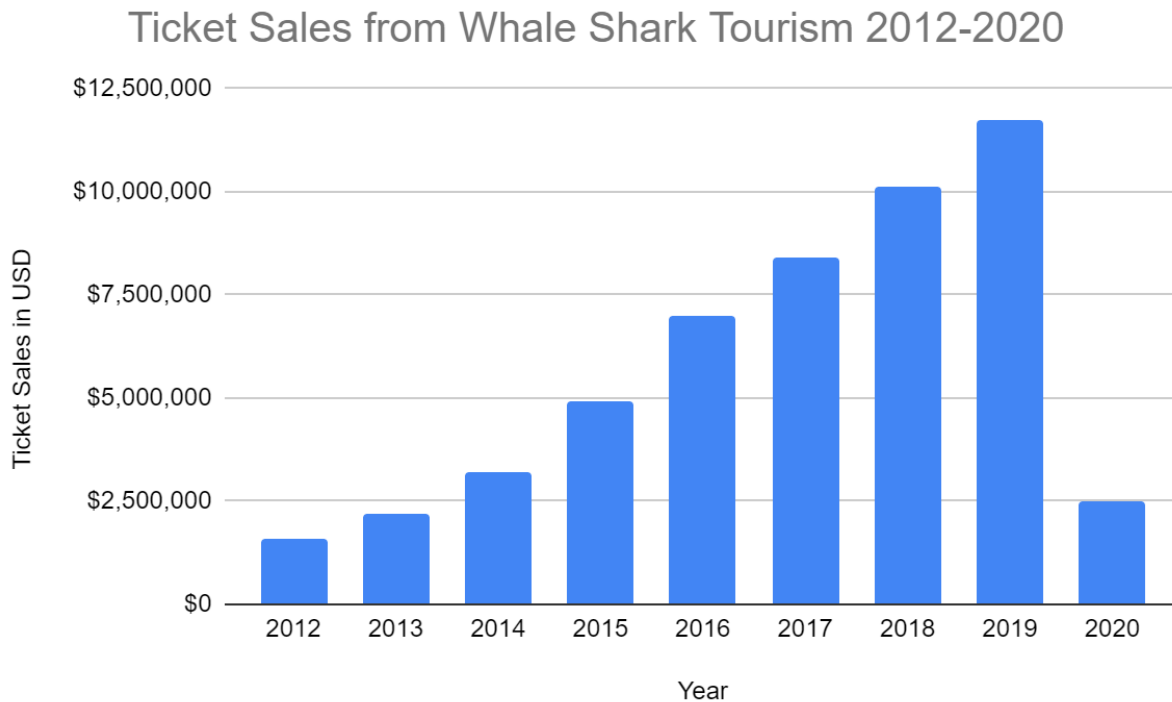


Figure 5. Ticket sales from whale shark tourism from 2012 to 2020. Conversion to USD was estimated off of the average PHP to USD conversion rate for each year, retrieved from the Philippines Central Bank. No data was available for 2021.

The pandemic and subsequent shutdowns resulted in temporary closures of OWS, with the largest closure occurring from March to August 2020. This contributed to a significant decline in tourist numbers, and threw the viability of tourism as an alternative livelihood strategy into question. Tourism is often a way for diversifying livelihood strategies, but when tourism declines or stops, the “fall-back” position is for many people to return to their previous occupation, such as agricultural or nature-based forms of revenue generation (Cochrane, 2009). Lowe et al. (2019) and others suggested that this type of “fall-back” position could occur in Oslob if tourism stopped. This analysis aims to explore whether or not people are reverting to pre-tourism livelihood strategies, and to what extent the pandemic is impacting personal income, resource use, and environmental protection. To my understanding, this is the first study on the impacts of

COVID-19 on dive tourism in the Philippines. To that end, this project aims to answer the following research questions:

- What has been the economic impact of COVID-19 on Oslob Whale Sharks (OWS) and the livelihoods of fishers, their families, and the community of Tan-awan?
- To what extent has COVID-19 changed fishing effort, destructive fishing, and/or impacted the protection of whale sharks and marine reserves in Oslob?
- What do fishers and community members think is the role of OWS in Tan-awan and Oslob's recovery from the COVID-19 pandemic?

II. Methods

To answer these questions, and identify if there is a connection between a drop in whale shark tourism and changes in livelihoods, fishing effort, or protection of whale sharks and marine reserves in Oslob, semi-structured interviews were carried out in July and August 2021. Data were gathered from secondary sources as well, including visitor numbers, ticket sales, and numbers of registered fishers from municipal offices, as well as ecological data from Coastal Conservation and Education Foundation (CCEF). The secondary data were used to triangulate response to build a more complete picture of what has happened during the pandemic (Guest, 2013).

The key stakeholder interview guide was created in consultation and collaboration with CCEF and Dr. Judi Lowe (see Appendix A). As in previous studies of OWS, respondents were selected to provide a wide range of perspectives and reduce potential bias towards OWS (Lowe et al., 2019).

Purposeful sampling was used to select respondents that were particularly well suited to answer the research questions (Coyne, 1997), and to ensure that a wide range of perspectives would be included (Sandelowski, 2000). The groups of respondents selected included: Oslob Whale Sharks (OWS); TOSWFA fishers; fishers not associated with TOSWFA; government and elected officials; the *Bantay Dagat*; and, community members (men and women, young and old, who do and do not directly financially benefit from OWS). When possible, respondents were purposefully selected from within the groups, such as the Mayor of Oslob, the President of TOSWFA, and the Municipal Agriculture Officer. Beyond that, respondents were selected randomly within those groups by CCEF. Respondents came from Barangay Tan-awan, Luka, Poblacion (Central District) and barangays with MPAs: Gawi, Bangcogon, and Sumilon.

29 semi-structured interviews were conducted in July and August of 2021 by several members of the CCEF staff, both in English and Cebuano. 19 respondents were male and 10 were female. The age range was from 24 to 66 years old. The breakdown is: 3 respondents between 24-29 years old; 8 respondents between 30-39 years old; 8 respondents between 40-49 years old; 8 respondents between 50-66 years old; and the remaining 2 respondents declined to answer. 15 respondents indicated that they were associated with TOSWFA or Oslob Whale Sharks (OWS) in some way and 14 indicated that they were not.

Interviews were transcribed in English by CCEF staff members and later analyzed using thematic analysis. Thematic analysis, which allows for the identification of repeated patterns in a dataset (Kiger & Varpio, 2020), is an appropriate method for understanding the experiences, thoughts, and behaviors of respondents (Kiger & Varpio, 2020). The primary method of identifying themes within this data set was through repetition within and between interviews, and looking at key words or phrases in context. Some concepts or responses came up more frequently

than others (Ryan & Bernard, 2003). The responses collected were not particularly lengthy or detailed, so other methods of theme identification were inappropriate (Ryan & Bernard, 2003). Additionally, the author was unable to go to the site and perform interviews due to pandemic restrictions. This introduced some limitations to data collection. For example, the field notes and responses were filtered through the CCEF interviewers, which could have impacted what was considered important to record and what was not. This could have resulted in some bias in responses (Ryan & Bernard, 2003). Furthermore, the author was unable to ask respondents clarifying questions, probe answers, or conduct follow-up interviews.

The main questions asked during these interviews were: (1) what effect has COVID-19 had on the whale shark tourism business; (2) how has COVID-19 impacted livelihoods of fishers and the community; (3) how has COVID-19 impacted the condition of the whale sharks, fish, and coral reefs; (4) how has COVID-19 impacted the protection of the marine resources; (5) what type of role will whale shark tourism play in recovery from the COVID-19 pandemic?

III. Results and Discussion

Changes in Tourism

All of the respondents indicated that there were fewer tourists, but the number varied. Everyone said that there were little to no foreign tourists, mostly only domestic tourists. If there were any foreign tourists, they were perceived to be primarily foreigners married to Filipinos. Compared to pre-pandemic numbers, respondents thought that there were only around 5% of foreigners, with one respondent suggesting as high as 20%. Unfortunately, there are currently no accessible official tourist numbers past 2019 to compare with these perceptions. We do know, though, that the ticket sales from Oslob Whale Sharks decreased from \$11,759,566 USD in 2019 to \$2,480,654 USD in 2020, reflecting a decrease of 79% of income (see Figure 5). While the

79% decrease cannot definitively be attributed to any particular change without additional data, it stands to reason that the decrease of foreign tourists observed by respondents, in addition to the previous 2-year trend of increasing foreign tourists and decreasing domestic tourists (see Figure 4), suggests that reduced foreign tourists due to the pandemic caused a large decrease in income. The impact from foreign tourists, who pay more for their tickets than domestic tourists, must be considered when recommending future action for the recovery and sustainability of OWS.

When it comes to domestic tourism, 26 respondents indicated that Filipinos were still coming, but in lower numbers and only for day trips. While there are no official numbers, one dive shop proprietor stated that Filipino tourists were still coming on weekends (~100 people) and during the weekdays (~20-40 people). While the number of domestic tourists had decreased, there was still some tourism activity in the form of day trips. This emphasis on day trips reduces the potential expenditure on things like overnight accommodations and food, which reduces potential economic ripple effects of OWS to other establishments.

Response to the Pandemic

On March 16, 2020, Executive Order NO. 12s. 2020 was issued, which temporarily closed tourist spots in the municipality of Oslob due to the outbreak of COVID-19 in the Philippines. There were additional updated advisories as public health conditions changed, and ultimately, OWS was shut down from March 2020 to August 2020, when it reopened with enhanced COVID protocols (see Figure 6). At the time of these interviews (July and August 2021) not all of the tourism establishments had re-opened, with some respondents estimating only 20 to 50% of establishments were open compared to pre-pandemic levels.

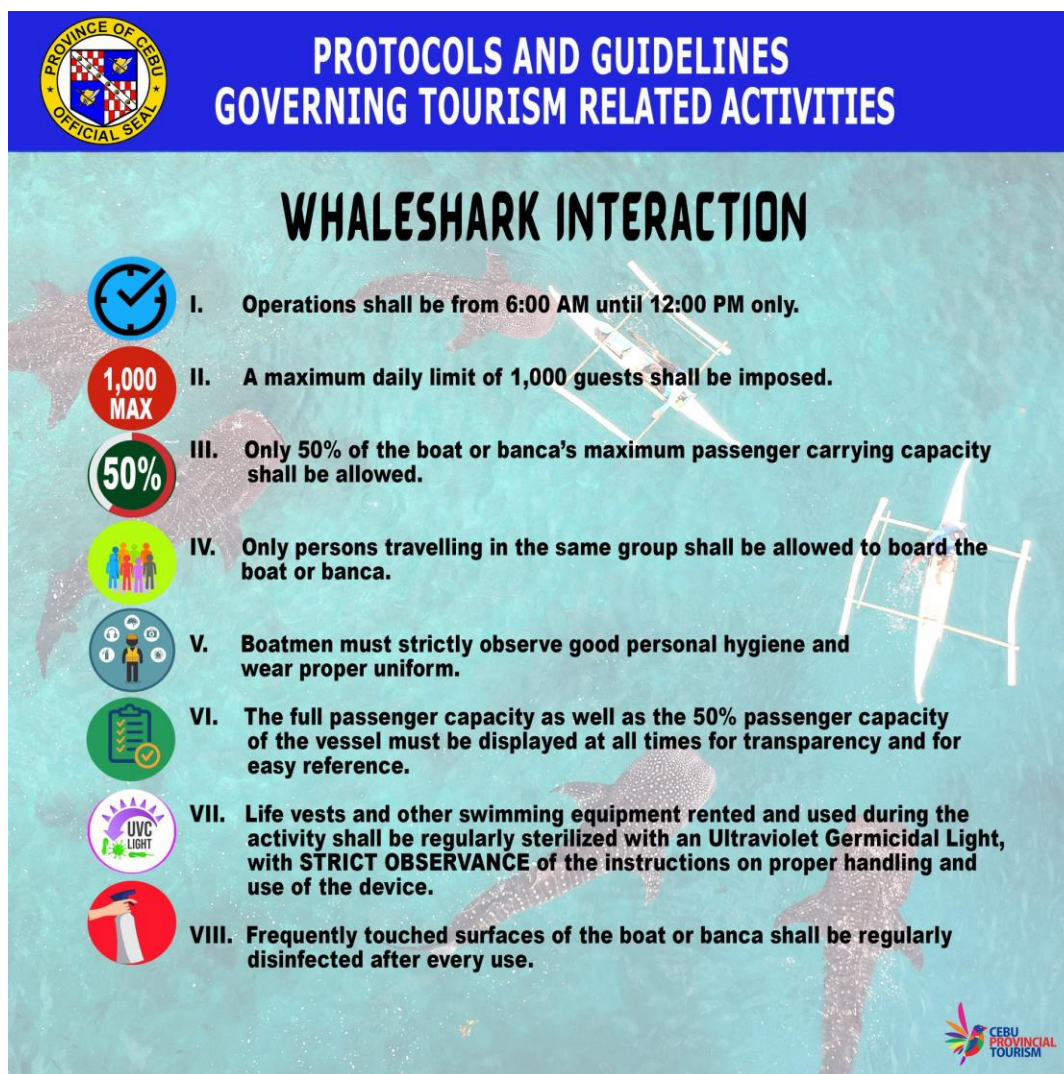


Figure 6. FaceBook image of protocols and guidelines governing tourism related activities (Cebu Provincial Tourism Office, 2020, July 29).

Many of the respondents indicated support for the mayor's response to the pandemic, acknowledging that he was restricted by COVID-19 protocols, but that he prioritized saving livelihoods and providing aid. As he stated, "I made sure to comply with the protocol of the National government. In 2020, Oslob was very strict with health and only loosened in August 2020." LGU relief aid was distributed, with TOSWFA receiving 500,000 PHP (~ \$9,700 USD) in aid (R23, Municipal Agricultural Officer), but residents were encouraged to find other sources of income.

Impact on Livelihoods and Income

The pandemic caused a complete shutdown of OWS for four months, followed by smaller temporary shutdowns and uncertainty. During this time, the TOSWFA fishers were forced to change their livelihood, something that previous researchers had hypothesized could happen (Lowe et al., 2019; Meekan & Lowe, 2019b). The main four changes that respondents observed were: TOSWFA fishers returning to full time fishing; TOSWFA fishers going into construction; TOSWFA fishers not working at all; and, TOSWFA fishers doing some type of sales, online or otherwise. These results are not too surprising considering that fishing is a main source of income in the municipality of Oslob, followed by construction and farming (Lowe & Tejada, 2019). Respondents also indicated that the wives and children of TOSWFA fishers were impacted. Wives went back to work doing laundry and some children left school to work, suggesting that the livelihood changes extended to more than just the TOSWFA fishers. More data on occupation changes and unemployment would strengthen the understanding of these impacts.

It was mentioned that TOSWFA's savings ran out, but there was no clear consensus on whether the TOSWFA fishers had personal savings. Responses indicated that some fishers had more savings than others. "Everyone made their own way. Construction, online business and fishing. Some were able to save, some were not" (R19, TOWSFA Boatman). In thinking about Oslob's recovery from the pandemic and the sustainability of OWS moving forward, it might be important to consider how TOSWFA fishers can increase financial resilience to potential downturns in the tourism industry.

In general, only 5 respondents said that COVID-19 had not impacted their livelihood, aside from stricter health protocols. The remaining 24 respondents said that COVID-19 has

impacted their livelihood, with 18 indicating it had affected them greatly. The biggest impact has come from the reduction in tourist numbers, with one respondent capturing a common sentiment: “lack of customers leads to lesser sales” (R10, Shop Attendant). Despite the large impact the pandemic has had, it was even split on whether respondents had to change their occupation or source of income. 15 respondents indicated their occupation or source of income changed, 14 indicated that it did not. Some of these respondents had multiple sources of income prior to the pandemic, and while they were able to keep both, their income decreased.

23 respondents indicated that their income decreased during the pandemic, but there were varying amounts of income loss. Of those respondents, 3 indicated that their income decreased, but they did not say by how much. 9 respondents indicated that their income decreased by 90% or more, with 2 of those respondents indicating that they were no longer receiving any income. 8 respondents were experiencing a decrease between 60 to 80% of their income, and the remaining 3 respondents were experiencing a decrease between 25 to 50% of their pre-pandemic income (see Figure 7).

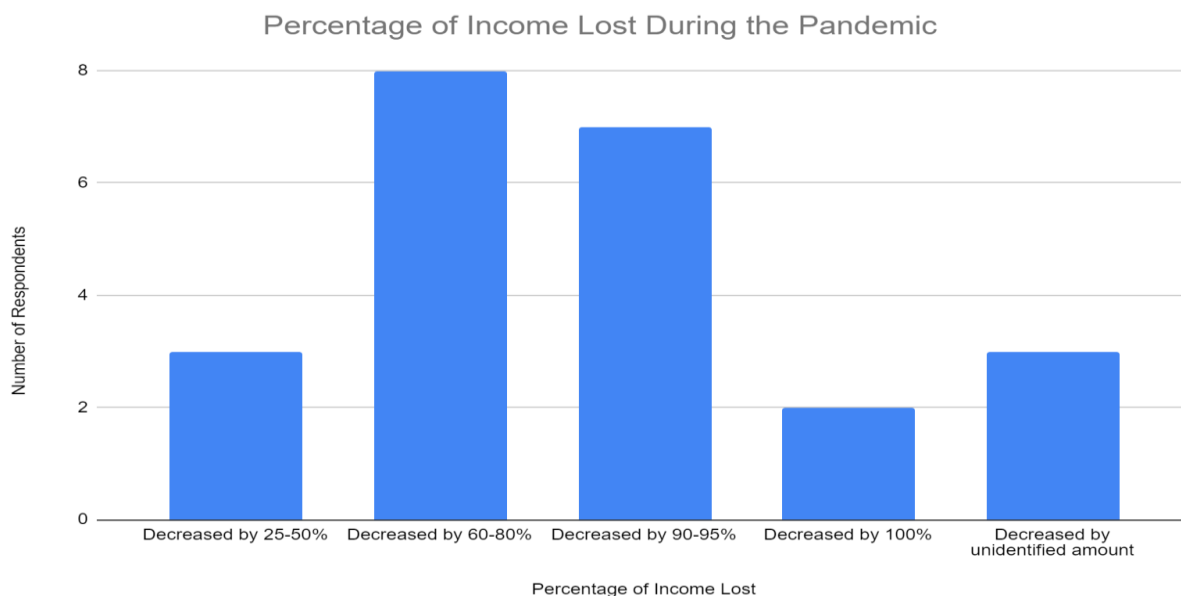


Figure 7. Percentage of respondents' income lost during the pandemic, compared to pre-pandemic levels.

The respondents that are associated with TOSWFA experienced the most consistent decreases in income, but respondents not affiliated with TOSWFA lost income as well. This further suggests that benefits from OWS expand to other members of the community, not just the whale shark tour guides and feeders. The 6 respondents who indicated that they have not experienced a decrease in income were primarily in government positions: the mayor, a Municipal Agriculture Officer, fish wardens, a Tourism Officer, and a member of the Coast Guard.

Although not every respondent said that the pandemic had changed their livelihoods, all of the respondents perceived that other community members were experiencing livelihood changes, along with decreased income. As the mayor mentioned, the pandemic set off a “chain reaction of affected businesses, from whale sharks, tricycles, resorts, shops, and markets.” The impact of the pandemic has spread to other tourism ventures in the area as well. Many of the visitors who come to OWS visit other tourist attractions in the area, such as Sumilon Island, Tumalog Falls, or Baluarte Ruins (Lowe & Tejada, 2019), and many locals in Oslob will provide services to tourists visiting those other destinations (Ziegler et al., 2018). A worker at the Monkey Viewing attraction in Oslob indicated that: “members of the monkey tourism used to have a weekly share of the profit. Nowadays, there is nothing to share” (R13). A member of the *Bantay Dagat* also indicated ripple effects, saying that the Bancogon Oslob Fisherman Association (BOFA) has experienced an income decrease due to fewer tourists visiting Sumilon Island, as a portion of Sumilon entrance fees support BOFA (R26, *Bantay Dagat*). Whale shark tourism attracts tourists to the area, who then visit other destinations. This spreads tourist expenditures throughout the municipality, but it was disrupted due to the pandemic.

24 respondents indicated that the pandemic, and the subsequent changes in livelihoods and income, had impacted their families. Most mentioned that there was poor food security, and difficulty in meeting basic needs. “Families of TOSWFA members used to eat three times a day and now they only eat twice a day and some don’t have electricity” (R27, TOSWFA President). Many respondents indicated that they could not buy the things they wanted, and that their budgets barely covered the things they needed. Many families were unable to pay their bills, were falling into debt, had to sell property, and their children’s educations suffered. One respondent, a former divemaster turned tricycle driver, had two children in college who resorted to working at a call center. Some children had to change schools while others stopped going to school entirely. Families were “experiencing great difficulty in providing for their daily needs. Some of the children in the household [had] no means to continue [their] education” (R13, worker at the Monkey Viewing attraction). The impacts go beyond local family challenges too, and one respondent, who owns a restaurant and store at Tumulog Falls, indicated that they were unable to provide the same amount of financial assistance to relatives. Another said that they were unable to travel back to their family in another province because they don’t have any income (R19, TOSWFA utility worker).

These results support previous studies’ findings that OWS has ripple effects beyond just the people involved with whale shark tourism. The decrease in tourism led to difficulties in providing education, more government reliance and debt, poor food security, and challenges in meeting basic needs. The respondents experienced many of these challenges, sometimes all of them at the same time, and the overall perception was that other families were experiencing the same thing, regardless of their affiliation with whale shark tourism.

Impact on the Environment

While 2 respondents were unsure what the status of whale shark feeding was, the rest of the respondents said that the whale sharks were being fed with support from the Department of Trade and Industry (DTI), the Local Government Unit (LGU), and Barangay Tan-awan. Responses indicated that “people [understood] there [was] a budget for the feeding” (R14, stall vendor), because “people understand that the whale sharks are essential for Oslob’s income” (R16, tricycle driver; Brgy. Gawi Committee on Fisheries). Another statement suggested that there might be some controversy in providing relief money to feed the whale sharks, stating: “people felt that [the] whale sharks [were] prioritized and some question that” (R15, fish warden). Ultimately though, all of the respondents thought that the whale sharks were important for Oslob and Tan-awan’s recovery from the pandemic, so it seems that they had accepted the continued feeding.

When asked about the number of whale sharks in the area, 4 respondents did not answer or did not have any idea on whether the number had changed over the course of the pandemic. Of the remaining respondents, 23 said that they had noticed a change. All of these respondents indicated that there were fewer whale sharks than before the pandemic, but it was inconclusive as to how much of a perceived decrease there actually was. Some respondents did not think that a potential decrease was abnormal. One respondent, a member of the Coast Guard, thought that there had not been a change in the number of whale sharks attributable to the pandemic, stating that “whale shark sightings occur seasonally, so there are times where they appear and disappear” (R11). A second respondent agreed, saying that “sometimes [they are] there, and sometimes [they are] not there” (R20, fish warden), but did think that the number had decreased overall. A third respondent, the President of TOSWFA, did not provide a definitive yes or no on

whether the number had changed, but indicated that there were “still a lot of whale sharks roaming” (R27), which could be attributed to the continued provisioning of the whale sharks.

When asked about the condition of the whale sharks, fish, and coral reefs in the area, 17 respondents thought that there had been a change due to the pandemic. These respondents primarily indicated that there were fewer whale sharks, but that the coral reefs were unchanged. When it comes to fish, most respondents perceived that the condition of fish stocks had remained the same, but they were worried fish stocks would decline due to increased fishing effort. The remaining 12 respondents thought that the condition of all the marine resources had remained the same and attributed it to effective protective measures and enforcement. While none of the respondents thought that the condition of the marine resources had declined, 4 respondents thought that the marine resources were better off due to “less anthropogenic activities” (R24, resort owner) and “less disturbances to nature” (R16, tricycle driver; Brgy. Gawi Committee on Fisheries), which allowed the marine resources to be “well rested” (R11, Coast Guard; R12, Brgy. Captain of Gawi). These results suggest that the majority of respondents did not associate a decrease in tourism with improved marine health.

Impact on Fishing and Gleaning

Fishing effort was perceived to have increased during the pandemic, with 22 respondents noticing a change in the number of people fishing. All of those respondents said that there were more fishers than there were before the pandemic (see Figure 8). This observation lines up with the Municipal Agriculture Office and Fisheries Management Profile data for 2018 to 2021, where the number of registered fishers in Oslob has increased (see Figure 9). Pre-pandemic, there were 1,070 registered fishers in Oslob, in 2021 there were 1,372. This data could support

previous researchers' thoughts that fishing effort would increase if tourism stopped (Meekan & Lowe, 2019b), but it is notable that there was a slight increase pre-pandemic as well.

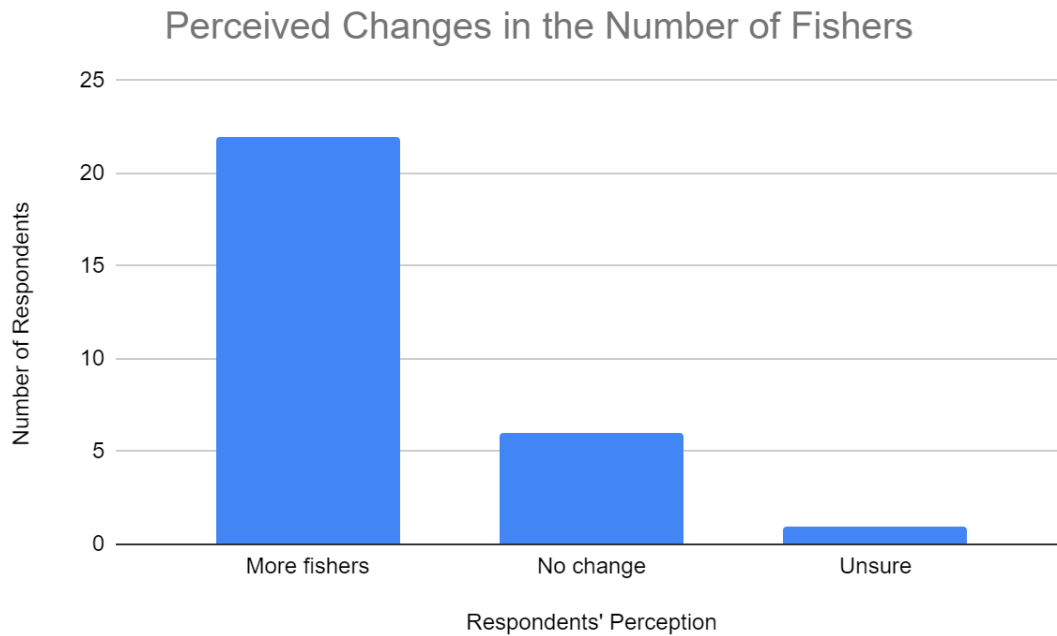


Figure 8. Respondents' perceptions of the change in quantity of fishers during the pandemic.

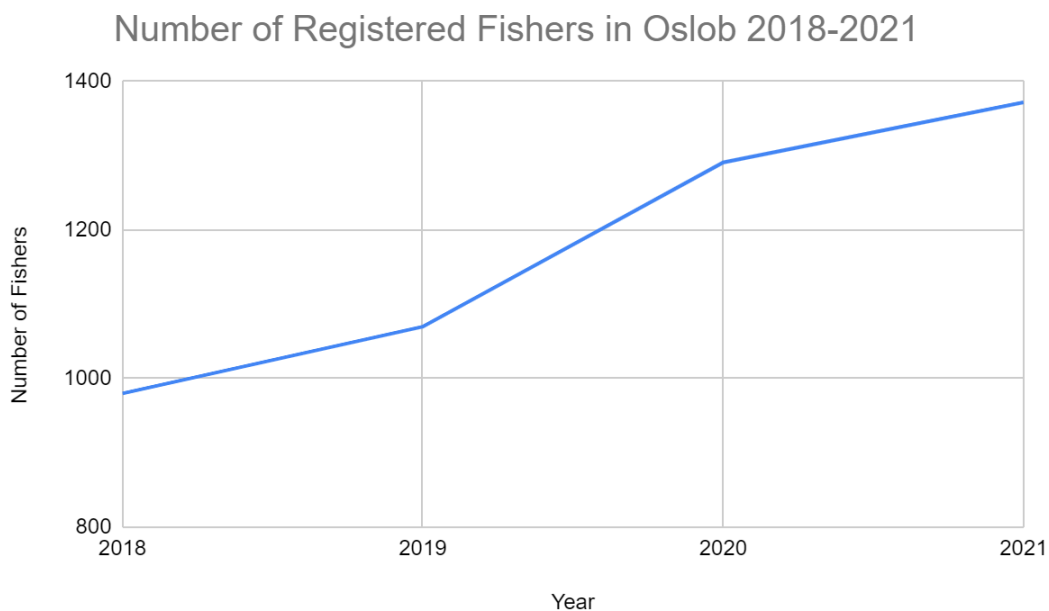


Figure 9. Number of registered fishers in Oslob from 2018 to 2021, determined by data from the Municipal Agriculture Office and Fisheries Management Profiles.

The majority of respondents indicated that, while the number of fishers had increased, the type of fishing had remained the same, generally hook and line. In addition to more fishers, 12 respondents thought that there were more fish being caught overall compared to pre-pandemic levels. 2 respondents thought there were less fish being caught overall, and 3 respondents were unsure. 1 respondent indicated that there were less fish being caught per person, but did not give a perception on overall fish catches compared to pre-pandemic levels. Out of the 11 respondents that thought the quantity of fish caught overall was unchanged from pre-pandemic levels, 5 thought that the quantity was always changing and depends on the weather and seasons, not pandemic conditions (see Figure 10).

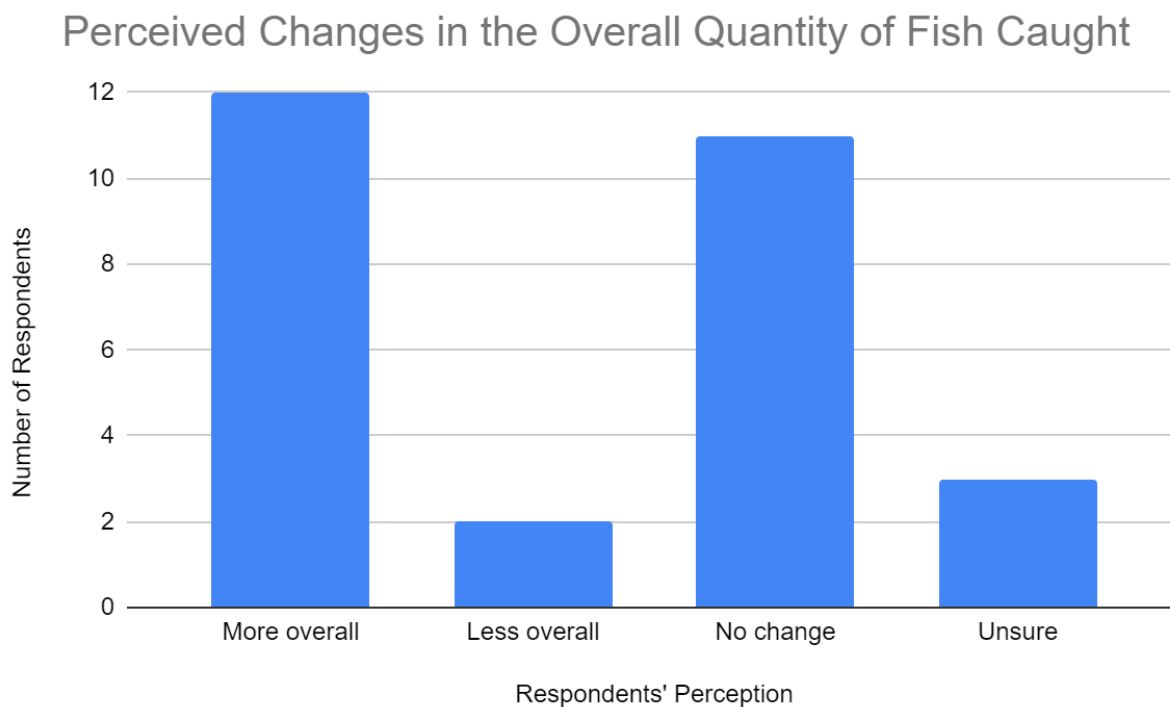


Figure 10. Respondents' perceptions of the quantity of fish caught overall during the pandemic compared to pre-pandemic conditions.

In regards to purchasing fish at the market, 8 respondents reported seeing a change in the type of fish, but the majority indicated that the quantity and type of fish available was about the

same as pre-pandemic. Only one respondent indicated that there had been fewer fish available in the market (R20, fish warden). One respondent indicated that more rare fish were available for purchase compared to before the pandemic (R26, *Bantay Dagat*), and another said that “delicious and good fish [were] now available for locals since they used to be only for foreign tourists” (R25, the mayor).

Gleaning activity was not clearly perceived as increasing during the pandemic. 10 respondents thought that there was more gleaning activity while 17 respondents did not notice a change. 1 respondent thought there was less gleaning and 1 respondent was unsure on whether there was any change (see Figure 11). It might be expected to see more gleaning activity as it can help to subsidize diets and improve food security (Grantham et al., 2021), something that many respondents stated was a concern; however, the results do not suggest that there was a significant difference in the amount of gleaning activity occurring compared to pre-pandemic levels.

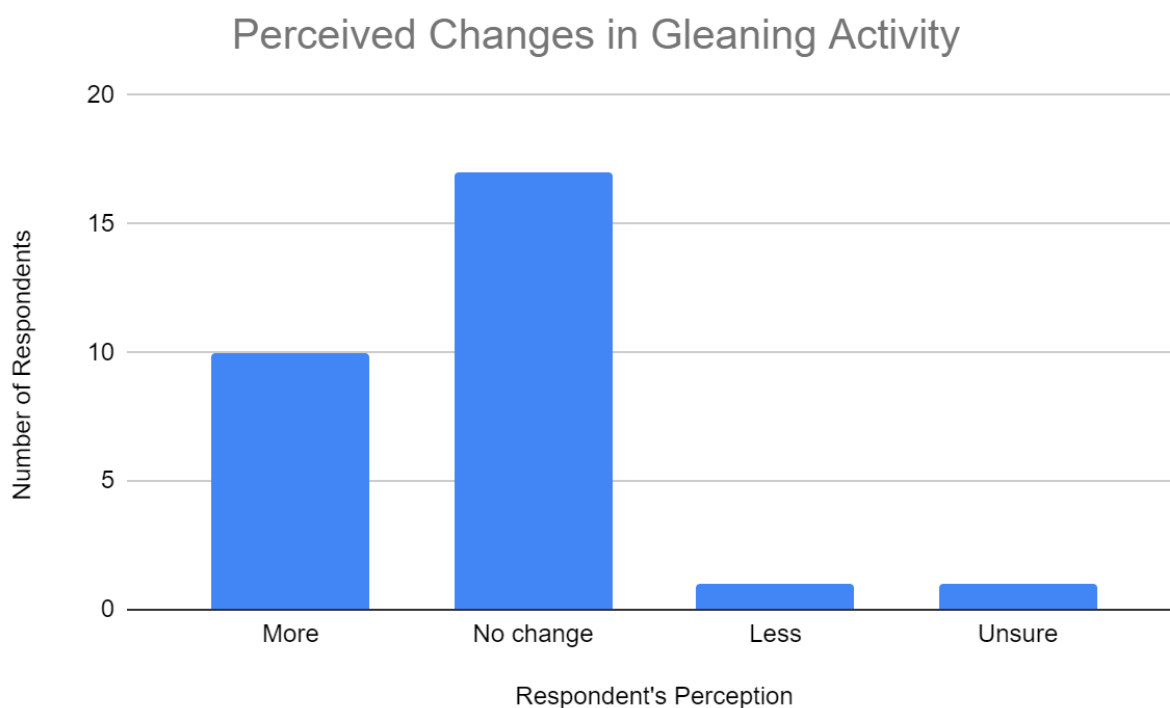


Figure 11. Respondents' perceptions of changes in the amount of gleaning activity occurring during the pandemic compared to pre-pandemic levels.

Impact on Destructive Fishing and Protections

When asked whether respondents had seen destructive or illegal fishing in Oslob's waters, 17 respondents said that they had not, 11 said that they had, and 1 respondent was unsure (see Figure 12). Of the respondents that had seen illegal or destructive fishing, including the *Bantay Dagat* office that was interviewed, they reported that it was happening outside of Barangay Tan-awan and by people from other areas. One respondent observed that "people from other municipalities [had] been doing fish poisoning, double net, and compressor [fishing]" (R12, Brgy. Captain in Gawi). Another respondent stated that there were "no [destructive fishers] in Barangay Tan-awan, but there [were] some from other barangays" (R11, Coast Guard). Additionally, one respondent indicated that fishers from Negros and Dumaguete were illegally entering and fishing in the area (R26, *Bantay Dagat*). By far, the main form of destructive fishing that respondents mentioned was illegal compressor fishing, and they thought most of those fishers were coming from Bohol.

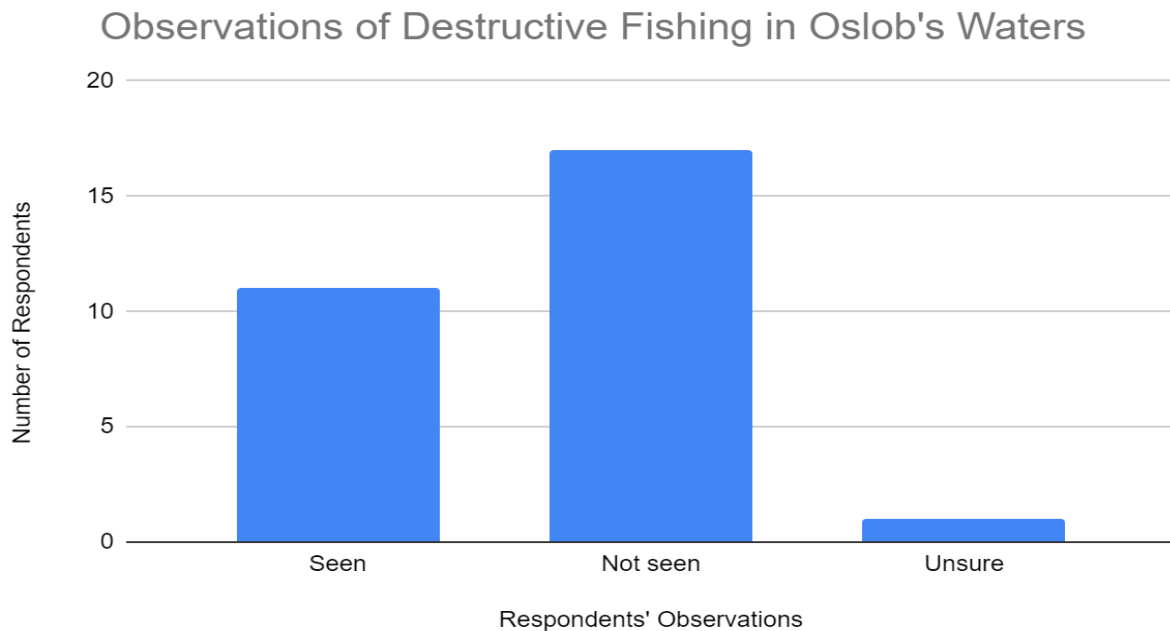


Figure 12. The number of respondents who had observed illegal or destructive fishing in Oslob's waters since the pandemic started.

When asked if respondents thought there had been a change in the amount of destructive fishing since the pandemic started, 7 said it had increased, while 19 said that the amount was more or less the same. According to these respondents, destructive and illegal fishing was still happening, but they did not think the pandemic had an impact. Only 1 respondent thought that illegal fishing had decreased, and 2 were unsure (see Figure 13).

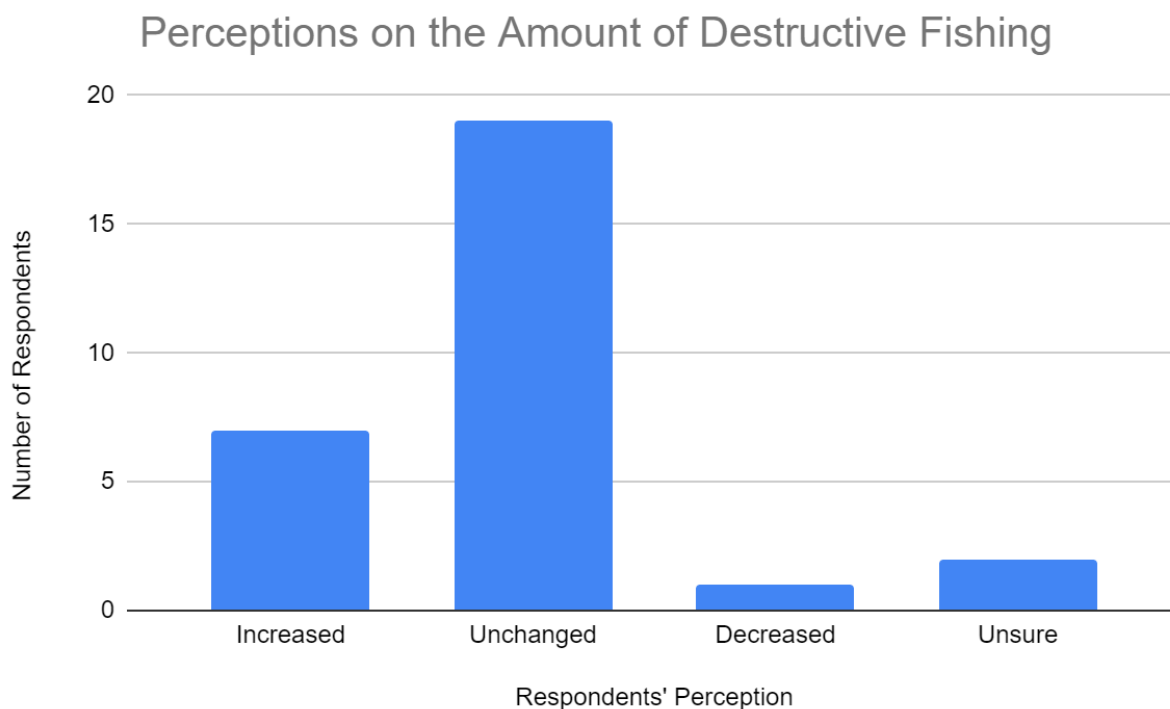


Figure 13. Respondents' perceptions of whether the amount of destructive and illegal fishing had changed.

The general consensus is that the protection of whale sharks, fish, and coral reefs had not changed (21 respondents). One respondent mentioned that the protection was “the same as usual, but the coastal enforcers [had] it easier compared to before because of fewer visitors” (R12, Brgy. Captain in Gawi). This response is most likely in reference to tourists' low compliance with regulations around whale shark tourism (Legaspi et al., 2020; Schleimer et al., 2015). Coastal enforcers are responsible for ensuring tourists follow those regulations, so a decrease in

tourism may reduce their workload, making their job “easier.” Conversely, a decrease in tourism also means less funding for coastal enforcement, as a portion of whale shark ticket sales goes towards financing enforcement and protections. Another respondent indicated that protections have slightly changed as they observed enforcement officers and patrols every day pre-pandemic, but not as much during the pandemic (R1, TOSWFA fisher). A third respondent stated that there were more relaxed protections for the whale shark area since it was less crowded, but the MPA protection was the same (R16, tricycle driver; Barangay Gawi Committee on Fisheries). These results suggest that whale shark tourism puts additional responsibility on enforcement officers, which could impact their ability to carry out enforcement of nearby marine reserves and protected areas.

In regards to the *Bantay Dagat*, 3 respondents perceived that the *Bantay Dagat* was more active and 15 respondents said that the pandemic had little to no impact on their activities. The *Bantay Dagat* was still consistently patrolling due to the continued support of the LGU. Despite decreased salaries and honoraria for coastal enforcers, and fewer fish wardens, the majority of respondents thought that protections had not declined during the pandemic and that the *Bantay Dagat* was minimally impacted. According to the *Bantay Dagat* officer interviewed (R26), there had been no impact or change in protections during the pandemic, despite these decreases in financial support and honoraria. One might expect to see a decrease in protections due to the decrease in financial support from tourism, so it is worth pointing out this officer’s perspective.

Notably, other tourist destinations in the Philippines also experienced a decrease in financial support from reduced tourism, but were still carrying out patrols and enforcing protections. Puerto Princesa Subterranean River National Park on Palawan, which receives funding from park entrance fees, still had park rangers patrolling the park during the lockdown

according to the protected area superintendent, Elizabeth Maclang (Fabro, 2020). She also stated that the same monitoring was occurring in marine areas due to the assumption that more people were going to engage in destructive fishing (Fabro, 2020). Jose Mazo, the park manager for Siete Pecados, a marine protected area off of the northwest coast of Palawan, stated that patrols were still occurring there as well. Despite decreases in tourism income, Mazo and other park rangers were patrolling the MPA, stating that the management of Siete Pecados had a few million Philippine pesos in reserves to keep the park funded (Fabro, 2020). Both Maclang and Mazo indicated that illegal and destructive fishing were concerns in their tourist destinations, so they emphasized the importance of continued coastal enforcement throughout the pandemic (Fabro, 2020).

When respondents were asked if they thought the marine reserves (Tan-awan, Sumilon, Gawi, Poblacion, Bancogan) needed more or less protection because of the pandemic, 21 respondents thought that more protection was needed, while 4 respondents thought that the current protections were adequate. The remaining 4 respondents were unsure whether more protection was needed or not (see Figure 14).

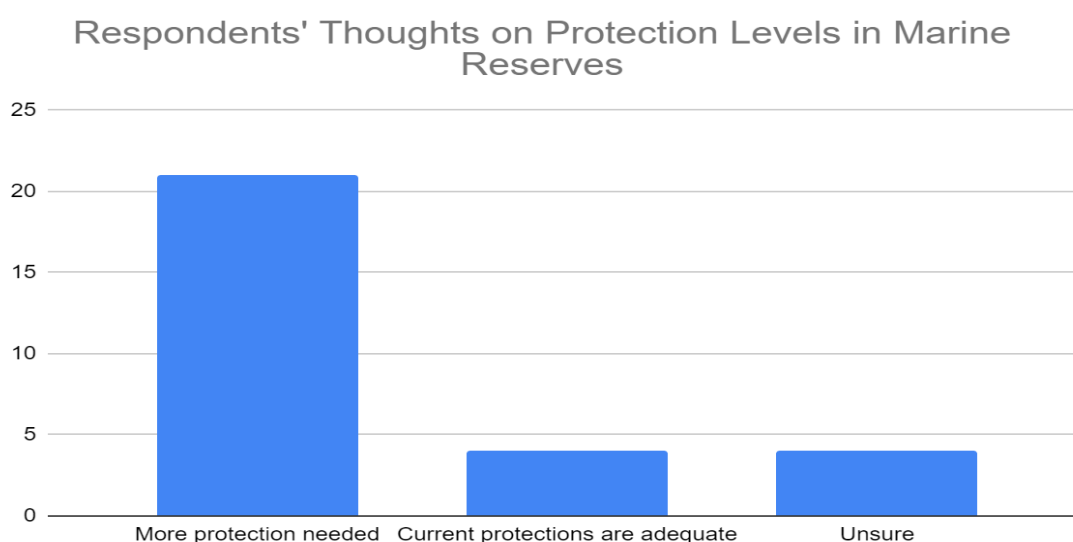


Figure 14. Respondents' thoughts on whether there needs to be more protection in the nearby marine reserves.

Although few respondents reported seeing destructive fishing and few respondents thought that destructive fishing had increased since the pandemic started, the majority of respondents thought that there needed to be more protection of the marine reserves. A few respondents linked illegal fishers to an increased need for protection, saying that some illegal fishers have firearms (R29, Sangguniang Kabataan Chairman; R26, *Bantay Dagat*) and that the enforcement officers were sometimes “outnumbered due to the rise of illegal fishers” (R12, Brgy. Captain in Gawi; Committee on Fisheries). Overall, though, the results were inconclusive as to whether the frequency of illegal and destructive fishing had been impacted by the pandemic. These results suggest that additional protections against illegal fishers, beyond what has been carried out throughout the pandemic, might not be warranted. Additionally, when compared with CCEF’s recent coral reef monitoring, Tan-awan scored a 72% for live hard coral (good coral cover) and achieved a MPA MEAT (marine protected area management effectiveness assessment tool) score of 79-Level 3. Sumilon, another protected area that receives financial benefits from tourism, scored an 88% (excellent coral cover) and a MEAT score of 79-Level 3. These numbers indicate that there is good enforcement and governance, with CCEF’s data suggesting that Oslob is one of the most well-enforced areas (Ibanez, 2021). Additionally, Sumilon Island Sanctuary received the 2021 Saviors of the Sea Recognition award, which is a special award from the Philippine National Police Maritime Group, and it was considered the best locally managed MPA of 2021 (CCEF, 2021). This further suggests that protections in Oslob are adequate, yet most of the respondents expressed a desire for more protection. The respondents who did not think more protection and enforcement were needed included: the mayor, a TOSWFA utility worker, and a fish warden. The mayor thought that protections were adequate, as long as coastal enforcers remained vigilant. The other respondents indicated that

more protection was not needed because they had not seen a change in destructive or illegal fishing, and the *Bantay Dagat* were still consistently patrolling.

Respondents who indicated a desire for more protections mentioned the financial and ecological impact of MPAs. One respondent emphasized that the marine reserves needed more protection because “MPAs are very important and play a big role in the economy of Oslob” (R10, shop attendant). Other respondents indicated that more fishers were fishing around the MPAs, so more enforcement should be in place to protect the fish and corals inside the MPAs. Another respondent said that they thought the MPAs need more protection “so that the whale sharks and fishes are not lost in the area” (R9, Committee on Agriculture and Environment in Tan-awan). This respondent later spoke about how important the whale sharks are for the local economy, which suggests a perceived connection between the MPAs and the tourism benefits that community members experience.

Recovery from the Pandemic

Every respondent indicated that whale shark tourism would lead the recovery of Tan-awan and Oslob from the pandemic, whether they were directly affiliated with TOSWFA or not. Several respondents indicated the ripple effects of whale shark tourism, with one saying that tourism is a “package deal” that affects everything else (R29, Sangguniang Kabataan Chairman). “The whale shark[s] can bring a lot of income to establishments, resorts, employees, [and] tricycle drivers” (R16, tricycle driver; Brgy. Gawi Committee on Fisheries), going beyond just the tourism operation. One respondent mentioned that “whale sharks are the identity of Oslob” (R10, shop attendant), and whale shark tourism seemed to be a source of pride among respondents. Another noted that the “whale sharks are one of the main attractions of the

municipality” (R11, Coast Guard officer). All respondents thought that whale shark tourism would play a large role in recovery from the pandemic, “even if [tourism recovers] by only 50%” (R25, the mayor). One respondent was confident that, “if the whale sharks stay and the pandemic ends, tourism would boom back” (R15, fish warden). Two respondents mentioned the importance of foreign tourists to recovery, and one said that whale shark tourism is the “bread and butter” (R24, resort owner) of Tan-awan. While optimistic about recovery from the pandemic, one dive shop owner thought that full recovery to pre-pandemic numbers would take three to five years (R2).

IV. Recommendations

The financial data on OWS ticket sales suggest that whale shark tourism in Tan-awan is a significant economic driver, and the financial benefits greatly diminished due to the pandemic and subsequent reduction of tourists. Given how important OWS is to Tan-awan and the municipality, sustainability of the business is a concern. This analysis demonstrates some of the impacts experienced by respondents in the absence of tourism, and if the business is not sustainable long-term, many of the benefits could be lost. To that end, the following recommendations are proposed to address sustainability concerns: (1) conduct a carrying capacity study; (2) institute and enforce a daily visitor limit; (3) conduct a willingness to pay study and re-evaluate ticket prices; (4) implement additional ecological monitoring ordinances; and, (5) create a financial savings account and emergency fund from OWS profits. These recommendations are tailored to the specific context of whale shark tourism in Oslob, but could be applicable to other tourist destinations experiencing similar challenges.

Conduct a carrying capacity study and then institute and enforce a daily visitor limit

Overcrowding has previously been raised as a concern at OWS (Ziegler et al., 2018; Ziegler et al., 2019a; Legaspi et al., 2020), both in regards to the environment and tourist satisfaction. In 2018, OWS met with the Bureau of Fisheries and Aquatic Resources (BFAR), the Department of Environment and Natural Resources (DENR), and the Provincial Government of Cebu, and they agreed that numbers would be regulated to 800 visitors per day (Lowe et al. 2019). This regulation never went into effect, as local stakeholders were concerned with the impact it would have on income (Ziegler et al., 2019b), and in 2019, the average number of visitors per day was 1,536.

Enhanced COVID guidelines placed the capacity limit at 1,000 tourists a day due to health concerns, but a carrying capacity study should be conducted to determine the best tourist limit both ecologically, to limit negative environmental impacts, and for maximum guest satisfaction. Carrying capacity is defined as “the maximum number of people that may visit a tourist destination at the same time, without causing destruction of the physical, economic, socio-cultural environment and an unacceptable decrease in the quality of visitors’ satisfaction” (UNWTO 1981: 4). Studies suggest that tourists have perceived OWS to be overcrowded (Ziegler et al., 2019a), and overcrowding impacts guest satisfaction negatively (Cisneros-Montemayor & Sumila, 2010). White & Rosales (2003) found that important factors in making community-based tourism successful in the Philippines include managing the number of tourists, the frequency of their visits, and their behavior, so an appropriate limit on visitor numbers could lead to more success for OWS.

Limiting visitor numbers could also reduce some of the workload of the *Bantay Dagat* and other coastal enforcers. Tourists do not always follow the rules, and coastal enforcers are responsible for monitoring and penalizing tourists for bad behavior. It might be worth requiring a specific ratio of coastal enforcers to tourists. This could allow for better enforcement of rules regarding tourist interactions with the whale sharks, and should be considered when determining carrying capacity.

Determining a sustainable number of visitors requires a holistic approach that balances resident values, visitor use, and ecosystem preservation (Arnold, 2021). Arnold's (2021) approach of modifying the Cifuentes methodology by including experiential and sociocultural considerations, in addition to biophysical and managerial considerations (Figure 15), would be an appropriate method in this case. When it comes to OWS, there are concerns within each of those sectors of tourism carrying capacity, so all four sectors must be considered.

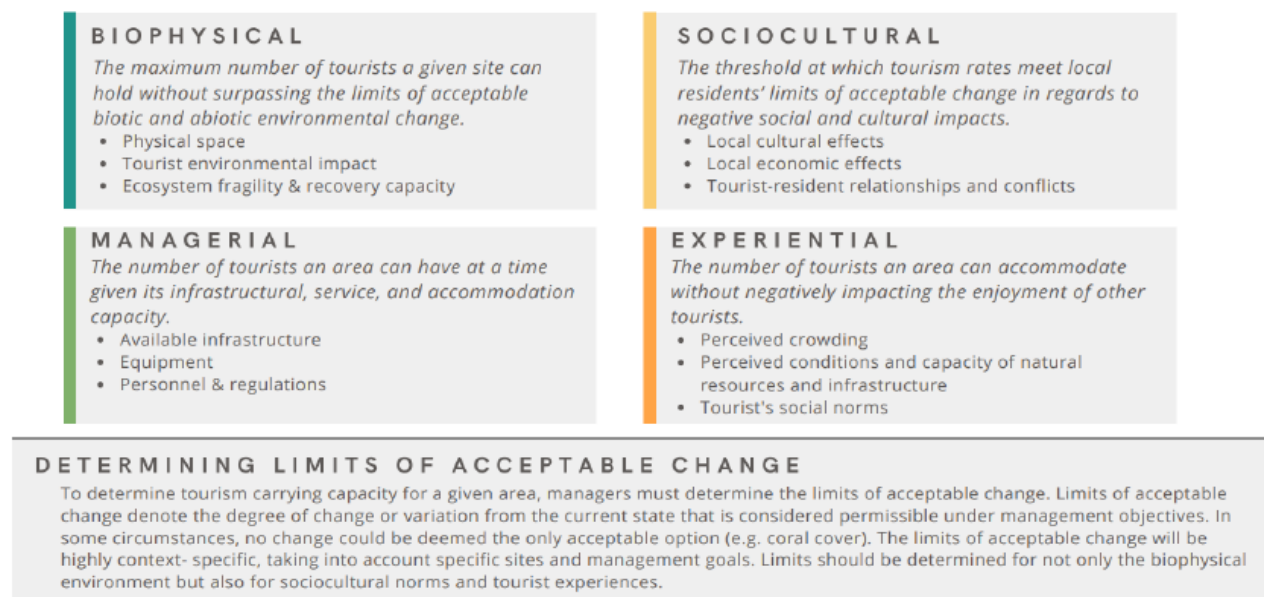


Figure 15. The four sectors of tourism carrying capacity (Arnold, 2021: 57).

In order to enforce the decided upon limit, OWS could continue to use the online booking portal that the Cebu Provincial Tourism Office has implemented during the pandemic. Right now, tourists are required to purchase tickets prior to their visit through <http://discover.cebuprov.gov.ph> (see Figure 16). The portal can set reservation limits, ensuring that no more than 1,000 tourists a day can participate in the whale shark interaction. This mechanism could be used moving forward to ensure carrying capacity is not exceeded.

DISCOVER CEBU ONLINE PORTAL

How to book?

1. Go to discover.cebuprov.gov.ph
Available Tours:
 - * Buho Rock Resort
 - * Alegria Canyoneering
 - * Pescador Island
 - * Oslob WhaleShark Interaction
 - * Badian Canyoneering Adventure
 - * Dance with the marine life at Gilutongan Marine Sanctuary
 - * Bukilat Cave
 - * Barili ATV Experience
 - * Sing with the mangroves
2. Who can avail?
Areas under Modified General Community Quarantine (MGCQ) in Cebu.
3. How to Pay?
Via Mhuillier Kwarto Padala with the following details:
Account Code: DISCOVERCEBU-(insert order number)
then inform the teller to deposit the payment at the destinations local government unit.
Example: 'LGU Oslob Bank Account' "DISCOVERBERCEBU-779"
4. For Inquiries, Kindly contact:
0917-843-7984 / 0920-975-7473

CEBU PROVINCIAL TOURISM

Figure 16. FaceBook image with details on how to book tourist attractions using the online portal (Cebu Provincial Tourism Office, 2020, September 14).

Conduct a willingness to pay study and re-evaluate ticket prices

Another consideration is how much tourists are willing to pay for the attraction, and whether it makes sense to adjust the price of admission. Throughout the pandemic, the ticket prices at OWS have been reduced to 500 PHP (~ \$10 USD) for both domestic and foreign tourists, but previously there was a price differential where foreign tourists paid 1000 PHP (~ \$20 USD), and locals paid 500 PHP (~ \$10 USD). The average cost of global whale shark experiences is \$100 USD (Ziegler et al., 2019a), so even at \$20 USD, OWS is one of the cheapest whale shark attractions in the world, and is virtually guaranteed to have sightings (Thomson et al., 2017; Lowe et al., 2019; Penketh et al. 2021).

Tourists, particularly those on time restricted or bucket-list trips, tend to pay more (Richards et al, 2015) and tourists who come to a region for one particular attraction (e.g., to see whale sharks) are typically higher spenders (Jones et al., 2009). Higher prices might not dissuade foreign tourists, and fewer tourists paying higher prices could alleviate local stakeholder concerns around income loss, as well as ecological concerns around overcrowding. Notably, it may be more viable to raise prices for foreign tourists than domestic tourists, as previous attempts to raise prices were met with local backlash (Mongaya, 2012). A willingness to pay study could give insight into how pricing could be better adjusted for both local and foreign tourists, especially considering that OWS should avoid outpricing local tourists to avoid potential conflict. This pricing information can then be used to allocate tickets in a way that supports both economic and environmental needs, while allowing for both foreign and domestic tourists to engage with the activity.

Implement additional ecological monitoring ordinances

The sustainability of a tourism endeavor such as OWS relies on healthy populations of whale sharks. If the populations decreased substantially, then visitor numbers would decline as well (Wilson & Tisdell, 2003). Ziegler et al. (2018) surveyed tourists who engaged in whale shark tourism in Tan-awan, and the majority of tourists stated that they would not have visited the area if there were no whale sharks.

There is both an environmental and economic incentive to keep healthy whale shark populations, but there are not enough data on whale sharks in general, nor on the impacts of tourism or provisioning. Previous research has indicated that tourism at a non-provisioned site has a smaller impact on whale sharks than environmental factors (Sanzgoni et al, 2015), but until the natural behavior of whale sharks is better understood, we cannot definitively say how tourism is impacting them. It is also difficult to compare fitness of provisioned and non-provisioned sharks without more data (Schleimer et al., 2015; Thomson et al., 2017), and there is a lack of evidence between provisioning, shark body condition, growth rates, residency, and behavior (Thomson et al., 2017; Meekan & Lowe, 2019a). In the absence of this understanding, it makes it difficult to implement effective tourism management policies or know whether existing policies for whale shark tourism are adequate. Research and monitoring are required for the industry's sustainability (Quiros, 2007), and many researchers have been calling for additional research on the whale sharks in Tan-awan (Thomson et al., 2017; Wong et al., 2018; Ziegler et al., 2018; Meekan & Lowe, 2019b; Penketh et al, 2021). Requiring more frequent monitoring of water quality, the coral reefs, and the whale sharks, could contribute to some of the present knowledge gaps.

In regards to monitoring the whale sharks, tourism operators like OWS are in optimal positions to assist in the collection of scientific data (Dobson et al., 2005). One way is through increased tourist and tour guide participation in photographic identification (photo-ID) efforts that are already in place. In the briefing area at OWS, there are several signs with information about whale sharks and the rules of engagement. One of the signs (Figure 17) has information about taking pictures for the Large Marine Vertebrate Research Institute Philippines' (LAMAVE) photo-ID database. This type of photo-ID in sharks is a reliable and minimally invasive method for data collection (Araujo et al., 2017), and whale sharks are ideally suited due to their identifiable patterns and spots (Davies et al., 2012). Photo-ID data from the public is appropriate in situations where animals are likely to be seen multiple times (Davies et al., 2012), which is the case for many of the whale sharks in Oslob. This long-term photographic data could help to address some of the unanswered questions about whale shark behavior and the impacts of provisioning, such as the frequency of injuries, as well as help to establish residency and movement patterns through a tracking database.

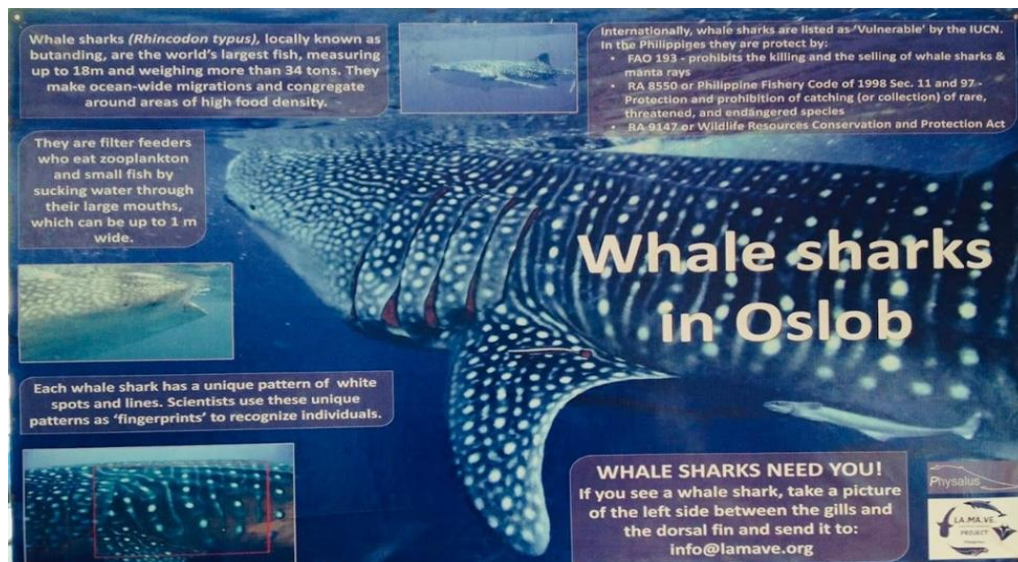


Figure 17. Sign in the briefing area at OWS which mentions the citizen science photo ID initiative.

Create a financial savings account and emergency fund from OWS profits

Tourism is quite vulnerable to shocks, and events such as global health emergencies, terrorist attacks, and severe weather can all have negative impacts on tourism (Zeng et al., 2005). During the pandemic, many respondents indicated that they were suffering financially due to the decrease in tourism. In order to mitigate potential negative impacts of tourism decline due to crises, OWS could contribute a percentage of ticket sales to create a separate community savings and emergency fund. This fund could be drawn upon in other future crises, adding additional resilience. Similar community savings projects have been successful in the Philippines and could serve as a blueprint for Oslob.

The U.S. Agency for International Development (USAID) program, “Harnessing Markets to Secure a Future for Nearshore Fishers,” was carried out in the Philippines from October 2016 to March 2018. The project, done in partnership with Rare, Inc., focused on fishers and their families, and worked to build household financial assets and resilience through the development of community savings associations and social assets (USAID, 2018). Prior to the project, many fishers did not have reliable savings, but the project resulted in 102 savings clubs with 2,230 members, spread out among 15 municipalities: 5 in Luzon, 6 in the Visayas, and 4 in Mindanao. Over the course of 22 months, the savings clubs accumulated a total savings of 14.5 million PHP (~ \$277,000 USD) and became the largest network of successfully operated savings clubs in the fisheries sector (USAID, 2018). The fishers’ households were able to use the savings to support existing or new enterprises as well as reduce the negative impacts on their income due to poor weather and decreases in fish availability (USAID, 2018). USAID claims that building financial resilience through savings clubs led to reduced vulnerability of fishers’ households, and reduced threats to marine biodiversity (USAID, 2018). The fishers were able to fall back on savings as

opposed to increasing their fishing effort in the face of income loss. This strategy could be applied at a smaller scale for the municipality of Oslob, funded by ticket sales from whale shark tourism.

Additionally, as mentioned, other tourist destinations in the Philippines rely on tourism income for financing environmental protections, and when the pandemic hit, they were able to draw upon financial reserves (Fabro, 2020). TOSWFA received government aid during the pandemic, but it did not appear that TOSWFA had enough financial reserves to draw from. An emergency savings fund could contribute to individual financial resilience, as well as financial reserves that could provide funding for environmental protections in times of crisis.

There were also concerns from some respondents that financial aid was primarily given to TOSWFA fishers. There seemed to be perceived distributional inequalities in how aid was delivered, and an emergency fund could potentially allow for a larger financial reserve to draw from, which might eliminate some of the inequalities. As Ziegler et al. (2019b) stated, there are distributional concerns with OWS in that not everyone in the community benefits evenly. An ordinance that requires a certain percentage of OWS ticket sales to go into a municipal emergency fund could help to distribute the benefits more evenly.

There are other challenges to tourism resilience, such as climate change and rising sea levels, and a community emergency fund would provide financial reservoirs to draw upon when dealing with those challenges. Most recently, Cebu was impacted by Typhoon Odette, which caused widespread damage and the temporary shutdown of OWS in December 2021 and January 2022. In the face of climate change, there could be an increased risk of damage to Oslob, as well as shutdowns for the business. If additional tourism profits are available to support community

members during these crises, it could counteract some of the respondents' feelings that the whale sharks are prioritized over people, as well as some of the concerns over unequal distribution of benefits.

V. Conclusion

Whale shark tourism in Oslob, while controversial, has benefited Tan-awan and Oslob through alternative livelihoods, increased environmental outcomes and protections, and overall perceived increases in human wellbeing (Lowe et al. 2019; Lowe & Tejada 2019). During the course of the pandemic, tourist numbers dropped significantly, with no tourists allowed to visit for several months throughout 2020. In the absence of tourism, respondents expressed difficulty in meeting their basic needs and indicated that their wellbeing decreased. While many TOSWFA fishers had returned to fishing, respondents indicated that TOSWFA fishers also took up jobs in construction and sales. Respondents indicated that fishing effort had increased through the addition of new fishers, but results were inconclusive as to whether the quantity of fish caught overall had changed compared to pre-pandemic levels. Respondents were split between perceiving an overall increase of fish caught and perceiving no change. Additionally, the majority of respondents demonstrated an interest in increasing marine protections, although CCEF's coral reef monitoring surveys indicated that Oslob is one of the most well enforced areas. This could suggest that pre-pandemic environmental benefits have not been negated during the pandemic.

Respondents indicated that whale shark tourism is integral to the community's identity and success, and that it would play a key role in COVID-19 recovery. The LGU and the Department of Tourism have provided financial support throughout the pandemic to keep

feeding the sharks, as well as continued financing the *Bantay Dagat*, further indicating the value placed upon whale shark tourism. There was a sense of hope and expectation from the respondents that things would return to normal, and that whale shark tourism would lead recovery from the pandemic.

Financial data on OWS ticket sales from 2012 to 2021 suggest that whale shark tourism in Tan-awan is a significant economic driver. The financial benefits greatly diminished due to the pandemic and subsequent reduction of tourists. Given how important OWS is to Tan-awan and the municipality, sustainability of the business is a concern. The recommendations in this analysis could contribute to a more resilient business, and given the ripple effects from OWS, a more resilient community.

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Appendix A: Key Stakeholder Interview Guide

Key Stakeholder Interview Guide

Objective

Identify if there is a connection between a drop in whale shark tourism and changes in livelihoods, fishing effort, destructive fishing, or protection of whale sharks and marine reserves in Oslob.

Research Questions

1. What has been the economic impact of COVID-19 on Oslob Whale Sharks and the livelihoods of fishers and their families and community?
2. To what extent has COVID-19 changed fishing effort and destructive fishing and impacted the protection of whale sharks and marine reserves in Oslob?
3. What do the fishers and members of the community think are the best practices for Oslob Whale Sharks to move forward from the COVID-19 pandemic?

Key Stakeholder Groups

1. Oslob Whale Sharks
2. TOSWFA fishers
3. Fishers not associated with Oslob Whale Sharks
4. Government and elected officials
5. Community members (men and women, older and younger, who do and do not benefit financially from TOSWFA)

Data

Visitor numbers from 2017 to present. This will help to understand what the trend has been and what kind of drop happened during the pandemic.

Ticket pricing for local and foreign visitors. This will be obtained from the venue.

Change in fisher numbers (TOSWFA and non-TOSWFA) to determine how many fishers there were before COVID, during the thick of it, and now. This will be obtained from TOSWFA and BFAR.

Key Stakeholder Interviews

Key stakeholder interviews will be conducted in private settings appropriate to the interviewee. Interviews will stop when saturation is reached and no new information is being obtained. Interviews will provide data relevant to all three research questions.

Questionnaire

Introduction

Thank you for taking the time to participate in this research. Our questions will probably take 30 minutes to an hour, but you may choose to stop at any time.

Here is an information sheet about our research. It gives you contact details for me, my supervisor, and the university if you want to talk to us at any time.

Would you please sign here to show that I have given you this sheet?

I would like to record our discussion. Would you mind? This will allow me to focus on our conversation and not write notes all the time. No one other than me and the research team will hear your interviews.

I would like to ask what you think about COVID-19's impact on whale shark tourism, fishing, you and your community.

- **To start, I'd like to know a little more about you and what your role is in the community.**
 - What do you do around here?
 - Do you have much to do with TOSWFA or Oslob Whale Sharks?
- **Now, I'd like to ask what effect you think COVID-19 has had on Oslob Whale Sharks, the tourism business.**
 - Have tourist numbers changed?
 - Are you seeing more or less foreigners around?
 - Are Filipinos still coming?
 - If the business shut down, when did that happen? Did it open up again at any time?
 - What did the Mayor say?
 - Where did the TOSWFA fishers go? What are they doing now? Did they have savings?
- **Now, I'd like to ask what you think about the impact the COVID-19 pandemic has had on the livelihoods of fishers and the community.**
 - How has COVID-19 impacted your livelihood?
 - Has your occupation or source of income changed due to the pandemic?
 - Has the amount of your income changed? If so, by roughly how much?
 - How have these changes affected you and your family?
 - Do you think other community members' livelihoods have changed?
 - How?
 - Do you think their amount of income has changed? By roughly how much?
 - How have these changes affected them and their families?
- **Now, I'd like to ask what you think about the impact the COVID-19 pandemic has had on the whale sharks, fish, and coral reefs around here.**
 - Do you think that the number of whale sharks has changed?
 - If yes, when did you notice the change? By how many?
 - Are the whale sharks still being fed if there are no tourists?
 - If so, by whom? Who is paying for it? How do people feel about that?

- Do you think that the condition of whale sharks, fish, and coral reefs has changed since the pandemic started?
 - How do you think the condition has changed during the pandemic?
- Have you noticed a change in the type of fishing or the number of people fishing?
 - Are more or less people fishing?
 - Are more or less people gleaning at low tide?
- Has the quantity of fish caught since the pandemic started changed? In what way?
 - Do you see any difference in the type and quantity of fish available in the market?
- **Now, I'd like to ask you about the COVID-19 pandemic's impact on the protection of whale sharks, fish, and coral reefs.**
 - Have you observed a change in the protection of whale sharks, fish, and coral reefs around here?
 - What has the impact been on the Bantay Dagat's activities, such as financial support and the number of patrols?
 - Has anyone seen destructive fishing in Oslob waters? If so, do you think it was by locals or fishers from further away, like Bohol?
 - Do you think the amount of destructive fishing has changed since the pandemic started?
 - Do you think the marine reserves (Tan-awan, Sumilon, Gawai, Poblacion, Bancogan) need more or less protection because of the pandemic?
- **Lastly, I'd like to ask what you think about economic recovery from the COVID-19 pandemic.**
 - How important do you think the whale shark tourism is to Tan-awan and Oslob's recovery?
 - Could Oslob Whale Sharks be part of the economic recovery from the COVID-19 pandemic for the people of Tan-awan and Oslob?

- **Conclusion and next steps**

Those are all of the questions we have for you today. Thank you again for participating and taking the time to speak with us. We greatly appreciate your time and interest in our research. It has been great to hear your perspective on the impact of the COVID-19 pandemic on the whale sharks, community, and marine reserves.

If you think of anything else that you would like to add, or if you would like to change any of your answers, please let me know.

When we have finished all of our interviews, we will analyze the data and write up a report on our findings. We would be happy to share our research findings with you and can send information if you would like.