# PROFILES OF CERTAIN FISHING COMMUNITIES FACING THE WEST PHILIPPINE SEA AND THE PROBLEMS THAT THEY CURRENTLY FACE

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# PROFILES OF CERTAIN FISHING COMMUNITIES FACING THE WEST PHILIPPINE SEA AND THE PROBLEMS THAT THEY CURRENTLY FACE

**First Report**
**Project on Legal Actions to Protect Philippine Fishing Rights of the Fisherfolk of the Bataan-Zambales-Pangasinan Fishing Communities and the Future Generations**

submitted to
The Institut für Auslandsbeziehungen

by the
Peoples Development Institute

October 2022

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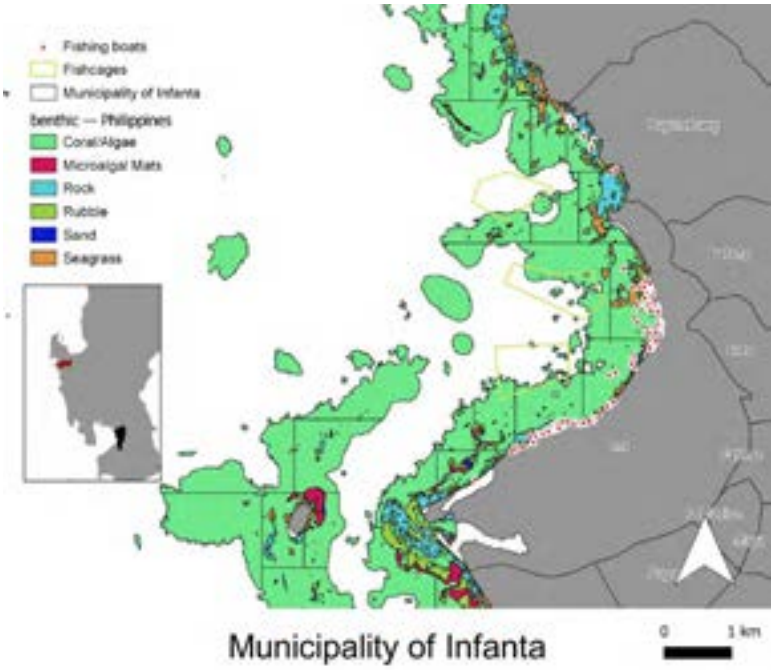
BIGKIS ng Mangingisda Leaders

## INFANTA, PANGASINAN

| LGC Classification | 3rd Class Municipality |
|---|---|
| **Land Area** | 254.29 sq km |
| **Estimated MarineDimensions** | |
| *Mainland shoreline* | 12.5 km |
| *Marine municipal waters* | 73.4 sq km |
| *Marinemunicipalwaters</=200m depth* | 73.4 sq km |
| **Demographics** | |
| **Total Population (2015 census)** | 24,584 |
| **Age distribution** | |
| *0-14 years old* | 8,560 |
| *15-64 years old* | 14,653 |
| *65 years and above* | 1,371 |
| **Populationdensity/distributionper sqkm** | 97 |
| **Total number of barangays** | 13 |
| **Coastal barangays / population** | 6 / 16,622 |
| *Bayambang* | 2,675 |
| *Batang* | 1,398 |
| *Cato* | 4,849 |
| *Nayom* | 2,093 |
| *Fatima* | 2,357 |
| *Poblacion* | 3,250 |
| **Local Economy** | |
| *Principal activities/sectors* | Fishing, farming, salt-making |
| *Internal Revenue Allotment (2016)* | 86,739,321 PHP |
| *Poverty incidence(2018)* | 12.80 % |

*Figure 1. Map of the Municipality of Infanta, Pangasinan showing the relationship between fishery habitats/resources and fishing communities indicated by fishing boats located along the shore. The three largest areas occupied by fish cages are also indicated.*




**Principally Affected Communities**

Barangays Cato and Bayambang, Sitios Banog and Pokdol

**Issues and Problems**

(1) ***Excessive number of fish cages in municipal waters***

The excessive numbers of fish cages and traps constructed in the waters of Infanta is a cause of concern for many local fishermen.

They say that the fish cages are practically filling up the town's municipal waters. The fish cages impede the safe passage and easy access of their *banca*'s to municipal fishing grounds. Infanta has extensive coral reef areas, which fishermen access by boat; by their routes are impeded by numerous fish cages concentrated in three large areas. (See Figure 2) They are afraid that they might collide with the fish cages, as they are not clearly visible nor marked, especially when it is dark in the early morning or evening when they usually embark or come home. Navigation is especially difficult when the waters are not calm, which happens often. This reportedly affects more than 200 municipal fishers with small boats and more than 600 commercial fishers/ fish-workers and their large commercial fishing vessels. (See Figure 3 to 7)

*Figure 2. Fishing boats anchored or onshore located via Sentinel satellite imagery compared with the area of highest concentration of fish cages in Infanta waters. Direct and free access to the sea is obstructed.*

*Figure 3. View of the perimeter of one of the fish cage areas. The structures are used by the fish cage operators' caretakers and guards.*

*Figure 4. Closer view of one of the structures near the fish cages.*

*Figure 5. The fishermen of Infanta complain that the fish cages are navigational hazards, especially during rough sea conditions and at night. The structures are not visibly marked during the day, and have no warning lights at night.*

*Figure 6. Even during the day, the circular fish cages are barely visible. In this photograph, the dark fence-like structure of the circular fish cages are seen only because they obscure the lighter-colored bamboo fish cages in the background.*

*Figure 7. A small municipal fishing boat comes ashore, with the horizon behind it almost completely lined with fish cages.*

The fishermen have observed that the fish cages generate a lot of marine pollution on account of the fish feeds that used, and the detritus that the fish generate. They have witnessed the operators use large amounts of fish feeds and fertilizers, as well as chemicals and pesticides. Especially during these operations, the waters turn visibly black and murky. They have also noted the occurrence of fish-kill incidents, when numerous dead fish suddenly wash ashore, and noticed that dead fish are more often seen floating near the fish cages. (See Figure 8 to 9)

The proliferation of fish cages in the municipal waters of Infanta became very problematic after 2019. Before, the fish cages and traps were only a few and located some distance south of the fishing communities. But they increased greatly in 2020 and 2021, occupying much larger areas within 2 kilometers from the shore, and directly adjacent to the fishing communities' beaches. (See Figure 10)

*Figure 8. Fishermen say that the water around the fish cages are unnaturally black and murky due to the amount of fish feeds and chemicals used in the fish cages.*

*Figure 9. Floating dead fish are a common sight around the fish cages.*

*Figure 10. Sentinel satellite imagery shows the proliferation of fish cage installations in the municipal waters of Infanta. At first, there were only some fish cages that were mostly installed closer to shore, but a large number appeared particularly in 2020-2021.*

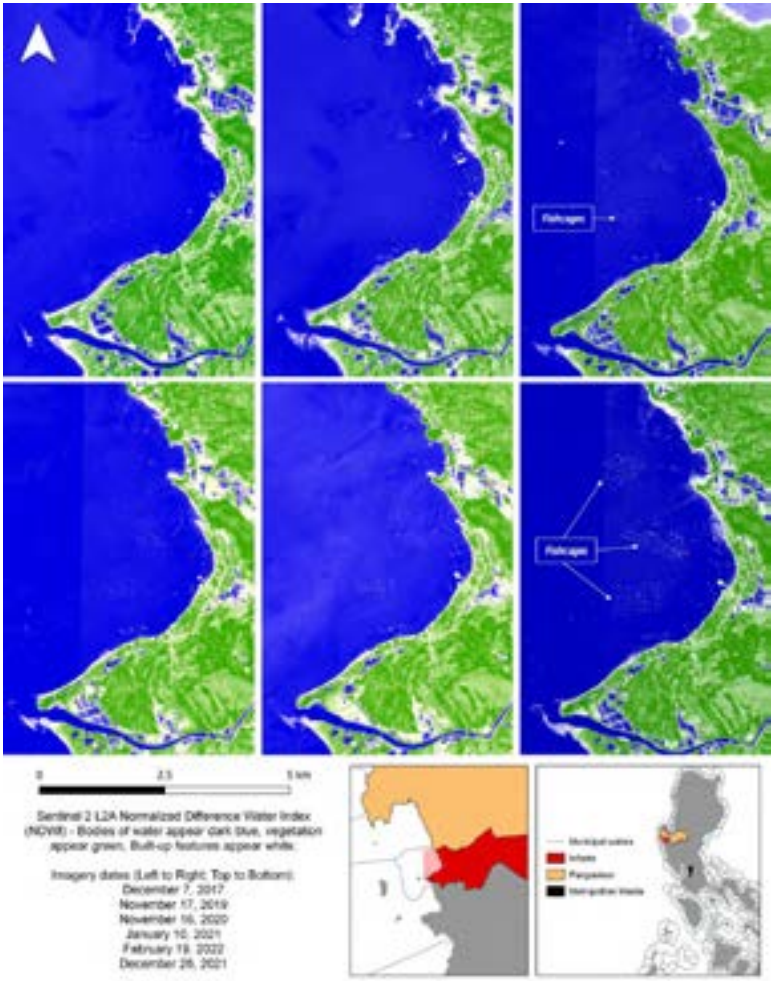


*Figure 11. Historical imagery from Google Earth shows the growth of fish cage areas in Infanta. Areas visibly occupied by fish cages are outlined in Yellow for 2019, Orange for 2020, and Red in 2021.*


Fish cage operations are also inducing damage to coastal resources such as mangroves and seagrass beds. Fishermen point to the recent construction of a long jetty or causeway on shallow water intended to allow trucks to reach deeper water, and make it easier to unload them to the boats that supply the fish cages. This caused the cutting of mangroves to clear a path for the trucks to reach the road, buried shallows and gleaning grounds from which residents used to gather shells, crabs, and seaweeds. Construction began sometime in 2021, and is clearly visible in Google Earth imagery dated October 2022. (See Figure 12 to 14)

*Figure 12. GoogleEarth imagery from October 2022 shows a jetty/causeway reaching out from the shore to one of the fish cage complexes in Infanta.*


*Figure 13. The jetty/causeway was constructed on the shallow reef flat/seagrass bed only sometime mid- or late 2021. Imagery from Maxar.*

*Figure 14. The jetty/causeway as presently seen from the water.*

### *2) Mining activities in the neighboring towns of Sta. Cruz and Candelaria*

There is a stockpile of mineral ores at Sitio Pokdol, near Barangay Cato, owned by the Eramen Minerals Inc. and/or the Yin Long Corporation which reportedly have mining operations in Sta. Cruz and Candelaria. (See Figure 15) The stockpile was established sometime between 2011 and 2012. The ores are transported to the site on trucks, creating dust clouds and dirt in the community. From time to time, a bulk cargo vessel picks up the stockpile; the operation frequently also pollutes the water. The presence and location of stockpile creates lingering pollution and continuous sedimentation in its immediate vicinity near the beach and at sea, especially after the rain since it is basically comprised of open mounds or piles of mineral ore and dirt awaiting shipment elsewhere for processing. (See Figures 16 and 17) This is exacerbated by sediments also flowing into the sea from river which apparently transports mine tailings from mining operations further upland. Fishers note that pollution, siltation, and sedimentation also occur in the town's river and tributaries. These tailings and silt sometimes turn the nearshore municipal waters red.

*Figure 15. A Google Earth image taken in October 2022 of the mineral stockpile/port in Sitio Pokdol, Infanta, Pangasinan, which the fishermen say is a serious cause of pollution in their community.*

*Figure 16. A Sentinel satellite image on 30 May 2022 clearly shows high levels of sediment suspended in the waters of Infanta.*

*Figure 17. Comparison of CNES/Airbus and Maxar satellite images taken in 2009 (above) and 2022 (below), with shaded areas indicating currently visible open pit mine areas in neighboring Sta. Cruz and Candelaria uplands. The extent of deforestation is also clearly visible in these true color images.*

The transportation of mineral ores generates a lot of dust, which usually settle and accumulate in the streets surrounding the stockpile. A number of people have complained of respiratorial illness and difficulty in breathing normally on account of the dust in the air. (See Figures 18 and 19)

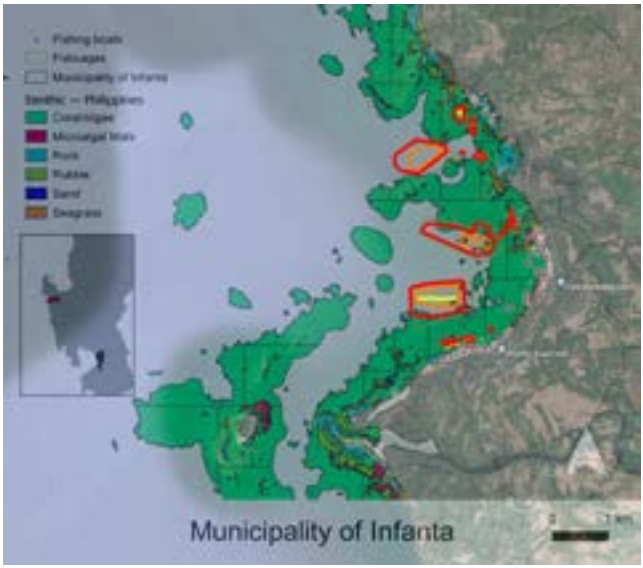
*Figure 18. GoogleEarth Street View on the main Olongapo-Bugallon Road, at the entrance to the mining stockpile in Sitio Pokdol, Infanta clearly shows a layer of red/brown dust on the road. The intersection of the entrance is kept wet to minimize the dust being blown by passing vehicles..*

*Figure 19. Another GoogleEarth Street View, this time on Merza Street next to the shore, in front of the Philippine Coast Guard station near the stockpile's wharf. Again, the red/brown layer of dust is visible on the read and surroundings, notably on the white tarpaulin draped over a banca on the right.*

### *(3) Marine pollution*

As also shown by Figures 8, 9, and 13, fishermen deal with two types of marine pollution. The first comes from the numerous fish cages installed in the municipal waters. The feeds and detritus from the fish-cages bury the coral underneath, and they note that the operators would move the fish-cages around whenever the feeds or fecal matter were already too much and practically overflowing from the fish-cages. Combining Figures 1 and 11 appear to corroborate these allegations. Prior to 2019, the smaller number of fish cages were all located within likely coral reef areas close to shore. From 2020 onwards, the number of fish cages increased and were placed in deeper waters at the edge of the coral reefs. (See Figure 20). Sea currents from west would drive any excess material from the fish cages toward the shore, where the fishing communities are also located.

*Figure 20. Figure 1 overlaid on Figure 11 enables a comparison of the location of fish cages and coral reef areas.*



The second type comes from the debris from the stockpile, washed away by rains and draining into the sea, as well as sedimentation in the rivers and coming from open pit mining operations upstream. These are said to turn the waters visibly red or black. (See Figure 20-25)

The fishermen complain that the polluted water from the fish-cages also cause rashes and irritation on contact with the skin. Added to the respiratory problems caused by the airborne dust, the effects of pollution from mining operations are not limited to the fishery; they also pose human health hazards.

*Figure 21. A Chinese vessel loading the stockpile of mineral oar from the peir in Barangay Cato, Infanta.*

*Figure 22. The beach area near the mining stockpile is visibly tinted red/brown, likely due to the sediments washing ashore or precipitating from the air.*

*Figure 23. Dark turbid water at the shore of Barangay Cato, Infanta.*

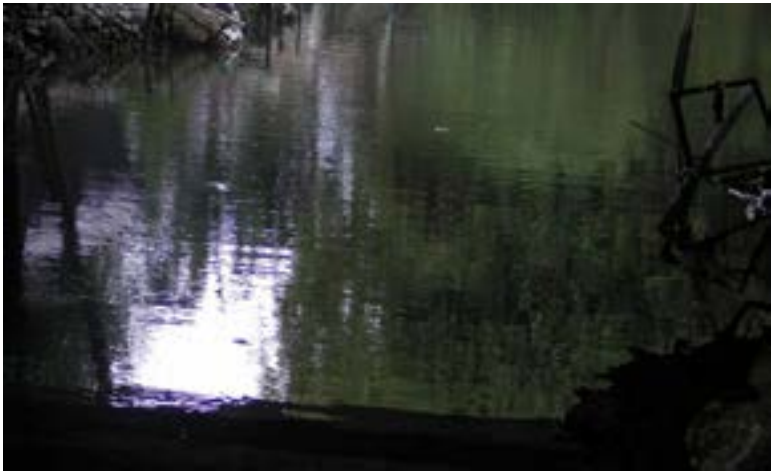
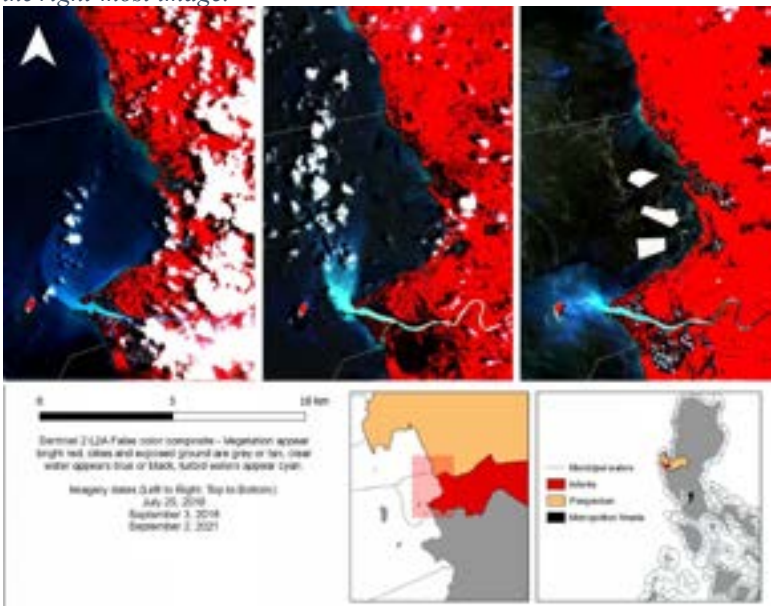


*Figure 24. Turbid waters just outside the fishermen's community location, which they attribute to the fish cages operations.*

*Figure 25. Sentinel satellite imagery captures some instances when the silt and sediments from the Nayom River flow out and are carried into Infanta's waters. The largest fish cage areas are indicated by the white polygons in the right-most image.*



### *(4) Lack of tenure and security in housing*

The establishment of the stockpile forced the relocation of about 50 original residents of and around the area currently occupied by the stockpile. The fishers did not own the land and had no security of tenure thus they were forced to leave by the owner to accommodate the stockpile, which was established in 2012. (See Figure 26 to 28)

*Figure 26. Comparison of DigitalGlobe and Maxar satellite imagery of the area of the mining stockpile indicates the displacement of a number of residential houses that used to be there in 2012.*

*Figure 27. This used to be the site of a fishing community, which was displaced by the mining stockpile.*

*Figure 28. Another view of the mining stockpile, which used to be occuped by residences.*

### *(5) Deteriorating seawall*

Near the mining stockpile in Sitio Pokdol is a deteriorating seawall. Residents complain that it was constructed along the shore, spanning several hundred feet, but is in such disrepair that parts of its supporting iron framework stick out in several places and create a hazard for the fishermen and children. One reported that his foot was injured by metal jutting out from the decaying seawall.

*Figure 29. The decaying/damaged seawall as seen from the water.*

### *(6) Dynamite- and cyanide-fishing*

Fishers report that dynamite fishing and cyanide fishing are conducted by non-residents who come from neighboring towns.

**Possible Legal Remedies**

The following legal remedies may be considered:

The proliferation of fish-cages may give rise to causes of action for BFAR Administrative Proceedings under separate provisions of the Fisheries Code. Sec. 111 of RA 10654 amending Sec. 55 of RA 8550 makes it unlawful for any person to "cause an obstruction to navigation." Such person may be punished with a fine of 200,000 PHP and ordered to dismantle, at their expense, the obstruction, which may include "fish corrals/traps, fish pens or fish cages." Prosecution through criminal proceedings, if necessary, can result in imprisonment from one month and one day to six months, and a fine of 400,000 PHP, confiscation of fish stocks (if any), and dismantling of the obstruction at the expense of the offender.

Further inquiry should be conducted as to whether the installation and placement of the fish cages (a) were carried out with a license or permit, and (b) whether contravene any provisions of the DA-BFAR Fishery Administrative Order No 214, series of 2001, otherwise known as The Code of Practice for Aquaculture mandated by Sec. 47 of RA 8550.

Construction and operation of fish cages without a license or permit is a punishable offense under Sec. 87 of RA 10654. The offender may be administratively liable for a fine of 500,000 to 1,000,000 PHP, the dismantling or removal of the obstructing

structure, rehabilitation of the affected area, and confiscation of fish stocks. This require verification with the LGU.

Although the Code does not have penal provisions, it provides for certain standards such as careful use of drugs, chemicals, potentially toxic pesticides and fertilizers. FAO 214 also requires aquaculture sites to be evaluated by the DA-BFAR together with the DENR, LGUs and FARMCs; and the operator is required to submit an Environmental Impact Statement to the DENR. It is not known whether these have been complied with.

Additional field research should be pursued as to whether the operation of fish cages violates the provisions of RA 9275, or The Clean Water Act, particularly Sec. 14 which requires permits to be secured for any and all effluent discharges, and Sec. 17 and 18 on the conduct of environmental impact assessment. This will require determination of whether the Community Environment and Natural Resources Officer (CENRO) or Regional Office (RO) of the DENR has received the required documentation and/or issued the necessary permits.

The fish cages operations may also be subject to prosecution for violation of Presidential Decree 600, or The Marine Pollution Decree, Sec. 4 and 5 of which make it unlawful to throw, discharge, deposit, or cause be thrown, discharged, or deposited any pollution and/or harmful substances into any navigable waters and tributaries of the Philippines. Such offenses are punishable by a fine of 5,000 PHP and imprisonment for 30 days, or both.

The matter of sedimentation needs further verification by following the sediment flows upriver and upland, but if indeed verified, could be brought to the attention of the Mines and Geosciences

Bureau of the DENR for possible violations of the mining activity's Environmental Compliance Certificate or terms of the relevant Mineral Production Sharing Agreement. This, however, assumes that the mining activity is a large-scale mining operation under a mining concession issued by the DENR. Verification of its nature, and confirmation that it is not an aggregation of small-scale mining activities, is needed.

The deteriorating seawall appears to be the result of public works, of either the national government through DPWH or the LGU. Further information is required to determine which office actually has jurisdiction and is directly responsible for the seawall's maintenance.

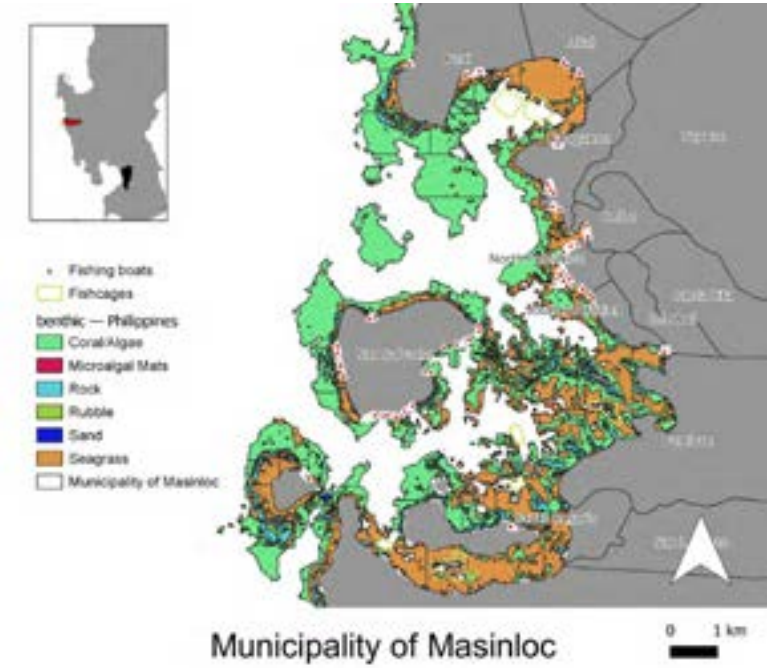
The lack of tenure over their residential spaces may be addressed through through representations with the LGU, which is mandated under Sec. 108 of the Fisheries Code to find suitable resettlement sites for fishing communities, to be implemented in conjunction with Executive Order 841, seriesof 2009 which requires LGUs to formulate local comprehensive land use plans, including the identification of areas of socialized housing and resettlement or relocation of sectors needing such assistance.

Dynamite and cyanide fishing are both prohibited under Sec. 88 of RA 10654, and makes the offender liable for imprisonment ranging from 6 months to 10 years depending on the nature of the offense. However, the offenders must first be caught; thus capacity building for law enforcement in the fishers' municipal waters is needed, as well as coordination with law enforcement agencies like the PNP Maritime Group and Philippine Coast Guard. Fishers may undergo training as Deputy Fish Wardens by DA-BFAR to add to the manpower available for law enforcement.

## MASINLOC, ZAMBALES

| | |
|---|---|
| **LGC Classification** | 1st Class Municipality |
| **Land Area** | 316.02 sq km |
| **Estimated Marine Dimensions** | |
| *Mainland shoreline* | 28.2 km |
| *Marine municipal waters* | 156 sq km |
| *Marine municipal waters </=200m depth* | 63 sq km |
| **Demographics** | |
| **Total Population (2015 census)** | 47,719 |
| **Age distribution** | |
| *0-14 years old* | 15,733 |
| *15-64 years old* | 29,392 |
| *65 years and above* | 2,594 |
| **Population density/distribution per sq km** | 151 |
| **Total number of barangays** | 13 |
| **Coastal barangays / population** | 8 / 32,643 |
| *Bani* | 5,818 |
| *Taltal* | 4,807 |
| *Baloganon* | 7,786 |
| *Colliat* | 3,184 |
| *North Poblacion* | 1,672 |
| *South Poblacion* | 4,403 |
| *Bamban* | 2,666 |
| *Santo Rosario* | 2,307 |
| **Local Economy** | |
| *Principal activities/sectors* | |
| *Internal Revenue Allotment (2016)* | 126,790,646 PHP |
| *Poverty incidence (2018)* | 9.60 % |

*Figure 30. Map of Masinloc, Zombales, showing the relationship between fishery habitats/resources and fishing communities indicated by fishing boats located along the shore. The largest areas occupied by fish cages are also indicated,*




**Affected Communities**

Barangays Bani, Taltal, and Baloganon

**Issues and Problems**

***(1) Excessive numbers of fish-cages in municipal waters***

Similar to the fishers of Infanta, the fishers of Masinloc complain of the excessive number of fish-cages which line the municipal waters from Oyon Bay up north to Palauig down south. However, Masinloc has a much

longer history of fish cage operations than Infanta, dating back to at least 2003 when small numbers of fish cages were installed near the shore in three areas: Oyon Bay, the waters around Bamban, and the strait between the mainland shore and Matalvis Island (locally known as Panglit). These three areas are also fishing grounds and sheltered navigational lanes for municipal and commercial fishing vessels moving to either the north or south; San Salvador Island tends to shield the mainland shore from rough sea conditions. (See Figure 31)

*Figure 31. GoogleEarth map shows fish cages areas (in red) concentrated in three places in the municipal waters of Masinloc, from north to south: Oyon Bay, Bamban, and Matalvis. Comparison with Figure 1 indicates that the latter two are deep within coral reef and seagrass bed areas, which are also rich fishing grounds.*

Vessels of the community in Sitio Atob Baloganon need to pass through the narrow waters between San Salvador Island and the mainland where the Coal Plant is located but groups of fish-cages form obstacles to their freedom of movement within Oyon Bay. Commercial fishers from Sitio Inhobol, and commercial and municipal fishers from Sitio Bamban, are also blocked from their usual routes; they usually travel south, hugging the coastline along Bamban and then between it and Matalvis. The concentration of fish cages between Matalvis and the southern coast, which they believe belong to a company called Peraper, is especially difficult for them.

A review of satellite imagery from 2003 to 2022 shows that the number and areas occupied by fish cages in the three areas have indeed been changing. In Oyon Bay and south of Matalvis, they have grown in size over the years, most notably after 2018, while in the area near Bamban they used to be only a small number and close to shore but have since moved eastward and occupied larger areas. (See Figures 32-34)

The owners/operators and financiers of the fish-cages are said to be non-residents of the municipality. Several names were mentioned as owners or investors, including a former very high government official.

The fishers also say that the fish-cages are guarded by armed men, who try to intimidate them by showing their guns when they approach. The fishers are naturally scared when they are threatened by the guards. (See Figures 35-36)

*Figure 32. Areas occupied by fish cages in Oyon Bay from 2003-2012 (Yellow), 2013-2018 (Orange), and 2019-2022 (Red). The fish cages have been relatively mobile within the same constricted space.*

*Figure 33. Areas occupied by fish cages off Bamban, Masinloc from 2003-2012 (Yellow), 2013-2018 (Orange), and 2019-2022 (Red). The fish cage operations grew from small nearshore numbers to the east and then expanded to the west.*

*Figure 34. Areas occupied by fish cages in the strait between Matalvis Island and the southern coast of Masinloc.*


*Figure 35. A man sits on top of a boat, guarding the fish cages.*

*Figure 36. One of the guard towers for the fish cages.*

*Figure 37. One of the fish cage storehouses where fish feed and fertilizer are kept prior to use.*

*Figure 38. A view of the shore of Oyon Bay; the path is directly obstructed by the fish cages.*

*Figure 39. Fish cages obstruct the narrow waterway at Sitios Baloganon, Talatal, and Bani in Masinloc.*

*Figure 40. Another view of the fish cages obstructing the narrow waterway between the mainland of Masinloc and Matalvis Island.*

### *(2) Marine pollution from fish-cage operations*

Like in Infanta, the fish cages are known to generate massive amounts of marine pollution. The discharges from the fish cages slowly cover the coral reefs of Masinloc. The operators are said to sometimes move the fish-cages' location whenever there is too much feed or pollution concentrated around them. These result in surrounding coral areas being smothered. Movement and expansion of the fish cage areas have been indicated previously in Figures 32 to 34.

Marine pollution from the fish-cages also allegedly damaged the few remaining mangrove stands along the town's shoreline, especially in the islands of San Salvador and Matalvis. There are few enough remaining mangrove stands in Masinloc, yet declining water quality may be accelerating their loss.

Fishers reported that on account of marine pollution from the fish-cages, the waters oftentimes turned either red or black. Rivers and creeks are also polluted and show deposition of grey or white substance said to be due to the fish feeds and fertilzers used by the operators. (See Figure 41) Seaweeds and seagrasses no longer survive in the shallow areas of municipal waters; turbidity prevents sunlight from nourishing them. They said that plant-life used to be plentiful in waters just 5 to 6 yards away from the shore; now, it has become difficult to even find any seaweed stands. They also say that there is no more blue or green algae to be found. Figure 30 above indicates the location of these seagrass and seaweed beds.

*Figure 41. A grey layer covers the beach and soil on the shore near Barangay Bato, Infanta.*

*Figure 42. A Sentinel satellite image on 10 May 2022 shows very high levels of suspended sediments concentrated all over the waters of Masinloc.*

The marine pollution from fish-cages is suspected to have caused at least two incidents of fish- kills annually in the past few years. These usually take place in March, particularly when the weather and season become hot after the rains, and between December to February. Although the LGU sometimes warns the people not to eat the dead fish that wash ashore, they have never informed the latter of the cause of the fish-kills.

### *(3) Negative environmental impact of the Coal Plant*

The Masinloc Coal Plant established by the National Power Corporation has been identified as the cause of various problems. Most prominent is the Coal Plant's coolant water, which is ejected into the marine waters of Masinloc. (See Figure 43)

*Figure 43. A clear GoogleEarth image showing the Masinloc power plant (top center), the coolant exhaust (left) where the hot water from the plant is clearly ejected into the sea. On the lower right is a cargo ship unloading coal for the power plant.*

*Figure 44. Landsat thermal imagery show a slight but visible change in surface water temperature in Oyon Bay after the Masinloc Coal Plant began operations sometime in 1998. Note the plume of warmer water flowing out from the location of the power plant..*

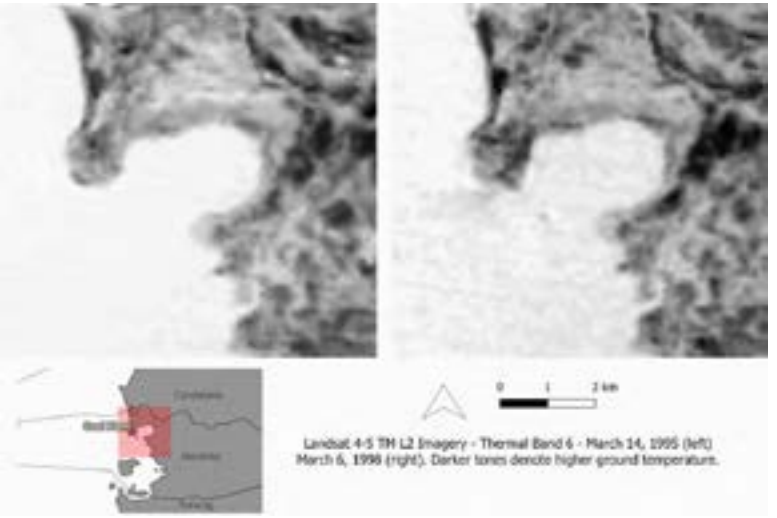
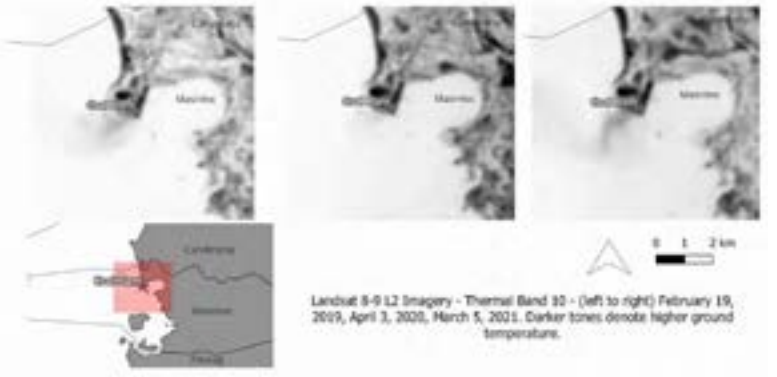



*Figure 45. Landsat thermal imagery for 2019, 2020, and 2021 again show a visible plume of warmer water flowing out onto the mouth of Oyon Bay.*



The Coal Plant's buoys are said to be made of steel, with the potential for damaging the residents' wooden boats or *banca*. They are afraid that the steel buoys could cause major damage to their fishing vessels should they collide with former. The buoys are also not easily visible, especially at night.

The community also believes that the atmospheric emissions of the plant, including the smell and the smoke, are responsible for damage their crops and trees. Mango is said to be particularly sensitive to these emissions.

*Figure 46. The Masinloc Coal Plant reportedly owned by the San Miguel Corporation.*

### *(4) Livelihood from fishing becoming increasingly difficult*

Fishers complain that fishing livelihoods have been in a huge downturn in recent years. Earnings from fishing have dropped dramatically, from 300-400 PHP per catch, to no more than 180-250 PHP. They also say that it has become hard to catch anything; they catch almost nothing at times. Normally, they used to be able to fish adequately between 7:00 p.m. and 2:00 p.m. but at present even if they were fishing from

3:00 p.m. to 10:00 p.m. they would still not catch enough for their own sustenance.

They feel that they are losing their fishing grounds to the fish-cage owners and operators. Fishers used to be able to fish freely all through the coast of Masinloc from north to south, and near San Salvador Island. Reportedly, there are now some 200 fish-cages near San Salvador Island, and 50 near the South Poblacion alone. They have no other fishing grounds to go to, since other municipalities have prohibited them fishing in their waters.

One very particular complaint from women in San Salvador Island deals with the lack of clarity, equity, and consistency as to the government's policy and stance with respect to tropical fish gathering or aquarium fishing. The government has banned the trade in tropical fish, but there are times, such as just before the last elections, when people still got permits despite the ban. The residents directly affected by the deeply affected by these local bans. It is no longer clear to them which mesh net sizes are legal or not. Tropical fish gatherers (or aquarium fishers) are particularly concentrated in area of Purok Maligaya on San Salvador Island.

### *(5) Lack of tenure and security in housing*

Fishers have also complained of the lack of tenure and security in the residence of the fishermen. They do not own any land, and particularly in Sitio Inhubol in Matalvis Island, they are concerned that they may be evicted anytime.

### *(6) Possible black sand mining*

Fishers have reportedly sighted dredging ships and barges containing black sand in waters off Potipot Island and the mouth of the Uacon River. (See Figure 47) They are concerned that black sand

mining through dredging is taking place somewhere in the municipal waters, although they have not identified where and have not actually witnessed dredging operations taking place.

*Figure 47. A large Chinese dredging ship recently sighted neart Oyon Bay.*

**Possible Legal Remedies**

The legal situation in Masinloc, Zambales is complicated by the fact that it is also a National Integrated Protected Areas System Site. The entire area covered by this study is also part of the Masinloc-Oyon Bay Protected Landscape and Seascape, subject to the management jurisdiction of its Protected Areas Management Board (PAMB) and guided by the Protected Area Management Plan established under RA 11038, or the Expanded National Integrated Protected Areas System (E-NIPAS) Act. This adds a layer of complexity on account of the operation of the E-NIPAS Site and other entities that it is carrying projects out with. Recourse to specific legal remedies must be reviewed and planned in light of specific provisions of the Management Plan. Further field research is required to determine convergences and divergences between the Man-

agement Plan and courses of action to be taken subsequent to this Report.

Subject to the *collatilla* above-mentioned, and consultations with the PAMB, the following legal remedies may be considered, similar to the courses of action recommended for Infanta:

The proliferation of fish-cages may give rise to causes of action for BFAR Administrative Proceedings under separate provisions of the Fisheries Code. Sec. 111 of RA 10654 amending Sec. 55 of RA 8550 makes it unlawful for any person to "cause an obstruction to navigation." Such person may be punished with a fine of 200,000 PHP and ordered to dismantle, at their expense, the obstruction, which may include "fish corrals/traps, fish pens or fish cages." Prosecution through criminal proceedings, if necessary, can result in imprisonment from one month and one day to six months, and a fine of 400,000 PHP, confiscation of fish stocks (if any), and dismantling of the obstruction at the expense of the offender.

Further inquiry should be conducted as to whether the installation and placement of the fish cages (a) were carried out with a license or permit, and (b) whether contravene any provisions of the DA-BFAR Fishery Administrative Order No 214, series of 2001, otherwise known as The Code of Practice for Aquaculture mandated by Sec. 47 of RA 8550.

Construction and operation of fish cages without a license or permit is a punishable offense under Sec. 87 of RA 10654. The offender may be administratively liable for a fine of 500,000 to 1,000,000 PHP, the dismantling or removal of the obstructing structure, rehabilitation of the affected area, and confiscation of fish stocks. This require verification with the LGU.

Although the Code does not have penal provisions, it provides for certain standards such as careful use of drugs, chemicals, potentially toxic pesticides and fertilizers. FAO 214 also requires aquaculture sites to be evaluated by the DA-BFAR together with the DENR, LGUs and FARMCs; and the operator is required to submit an Environmental Impact Statement to the DENR. It is not known whether these have been complied with.

Additional field research should be pursued as to whether the operation of fish cages violates the provisions of RA 9275, or The Clean Water Act, particularly Sec. 14 which requires permits to be secured for any and all effluent discharges, and Sec. 17 and 18 on the conduct of environmental impact assessment. This will require determination of whether the Community Environment and Natural Resources Officer (CENRO) or Regional Office (RO) of the DENR has received the required documentation and/or issued the necessary permits.

The fish cages operations may also be subject to prosecution for violation of Presidential Decree 600, or The Marine Pollution Decree, Sec. 4 and 5 of which make it unlawful to throw, discharge, deposit, or cause be thrown, discharged, or deposited any pollution and/or harmful substances into any navigable waters and tributaries of the Philippines. Such offenses are punishable by a fine of 5,000 PHP and imprisonment for 30 days, or both.

The matter of sedimentation needs further verification by following the sediment flows upriver and upland, but if indeed verified, could be brought to the attention of the Mines and Geosciences Bureau of the DENR for possible violations of the mining activity's Environmental Compliance Certificate or terms of the relevant Mineral Production Sharing Agreement. This, however, assumes that the mining activity is a large-scale mining operation under a mining concession issued by the DENR. Verification of its

nature, and confirmation that it is not an aggregation of small-scale mining activities, is needed.

The lack of tenure over their residential spaces may be addressed through representations with the LGU, which is mandated under Sec. 108 of the Fisheries Code to find suitable resettlement sites for fishing communities, to be implemented in conjunction with Executive Order 841, series of 2009 which requires LGUs to formulate local comprehensive land use plans, including the identification of areas of socialized housing and resettlement or relocation of sectors needing such assistance.

Dynamite and cyanide fishing are both prohibited under Sec. 88 of RA 10654, and makes the offender liable for imprisonment ranging from 6 months to 10 years depending on the nature of the offense. However, the offenders must first be caught; thus capacity building for law enforcement in the fishers' municipal waters is needed, as well as coordination with law enforcement agencies like the PNP Maritime Group and Philippine Coast Guard. Fishers may undergo training as Deputy Fish Wardens by DA-BFAR to add to the manpower available for law enforcement.

In addition, representations may be made with DA-BFAR and the LGU to convene and clarify the scope and implementation of the provisions of Sec. 93 of RA 10654, as implemented by Fisheries Administrative Orders No. 155, series of 1986, as amended by FAO No. 155-1, series of 1994, regulating the use of fish meshed nets. Fishing with the use of fine mesh nets are administratively penalized by a fine of three times the value of the catch, or 20,000 PHP for municipal fishing, or community service, and confiscation of the catch and gear. If the case is prosecuted in court, the penalty will be imprisonment from 6 months to 2 years, a fine of 40,000 PHP for municipal fishing, and confiscation of the catch and gear.

The negative environmental impact of the Coal Power Plant may be brought before DENR and DOE. The coal plant's compliance with the terms and conditions of its Environmental Compliance Certificate needs to be reviewed to determine whether it is liable for contravention thereof. The plant's independent power producer (IPP) contract may also be reviewed to determine whether it may be held accountable for the effects of its operations. Initially, representations may be pursued with the DOE and DENR to try to find an amicable solution; the company surely has Corporate Social Responsibility obligations that should be implemented.

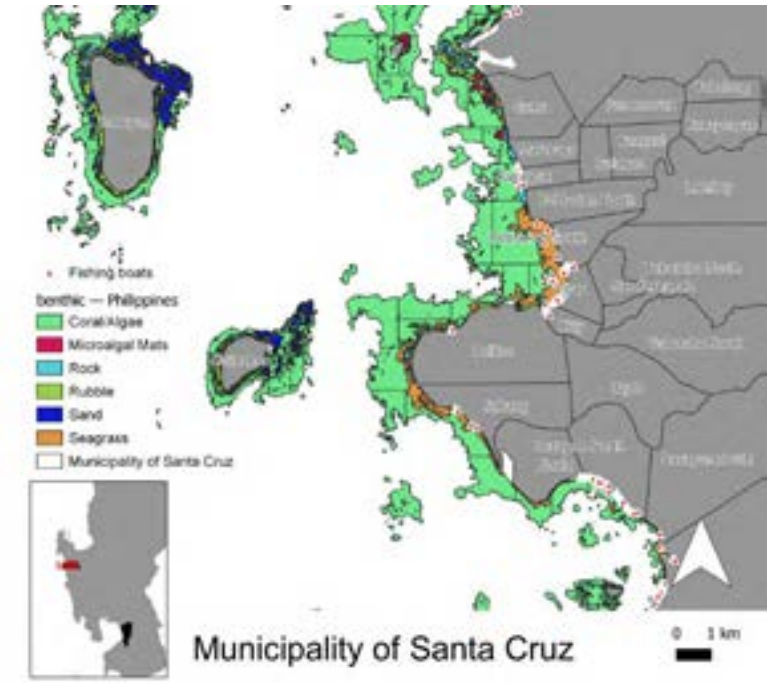
Again, in the same way as Infanta, the lack of tenure over their residential spaces may be addressed through through representations with the LGU, which is mandated under Sec. 108 of the Fisheries Code to find suitable resettlement sites for fishing communities, to be implemented in conjunction with Executive Order 841, series of 2009 which requires LGUs to formulate local comprehensive land use plans, including the identification of areas of socialized housing and resettlement or relocation of sectors needing such assistance.

The concerns over black sand mining must first be brought up before the Mines and Geosciences Bureau for verification or investigation, to determine whether any Mineral Production Sharing Agreement has been issued for black sand mining operations anywhere in the vicinity of the municipality. There may be a need to survey the coastline to determine whether there are any places where black sand mining is indeed taking place. The presence of foreign flagged dredging ships, particularly whether they are authorized to operate in Philippine waters, may be verified with the MARINA. However, this requires the identity of each and every vessel to be recorded and inquired into.

## STA. CRUZ, ZAMBALES

| | |
|---|---|
| **LGC Classification** | 1st Class Municipality |
| **Land Area** | 458.46 sq km |
| **Estimated MarineDimensions** | |
| *Mainland shoreline* | 22.7 km |
| *Marine municipal waters* | 494 sq km |
| *Marinemunicipalwaters</=200mdepth* | 201 sq km |
| **Demographics** | |
| **Total Population (2015 census)** | 58,151 |
| **Age distribution** | |
| *0-14 years old* | 19,298 |
| *15-64 years old* | 35,440 |
| *65 years and above* | 3,413 |
| **Population density/distribution per sq km** | 133 |
| **Total number of barangays** | 25 |
| **Coastal barangays / population** | 11 / 38,925 |
| *Gama* | 2,102 |
| *Malabago* | 2,781 |
| *Pagatpat* | 3,560 |
| *Poblacion North* | 3,163 |
| *Poblacion South* | 3,705 |
| *Lipay* | 6,446 |
| *Biay* | 2,645 |
| *Bolitoc* | 3,648 |
| *Sabang* | 1,410 |
| *Naulo* | 2,524 |
| *Lucapon North* | 2,657 |
| *Lucapon South* | 4,284 |
| **Local Economy** | |
| *Principal activities/sectors* | |
| *Internal Revenue Allotment (2016)* | 149,892,054 PHP |
| *Poverty incidence(2018)* | 9.60 % |

*Figure 48. Map of Sta. Cruz, Zombales, showing the relationship between fishery habitats/resources and fishing communities indicated by fishing boats located along the shore.*




**Affected Communities**

Barangays Lucapon North, Lucapon South, Naulo, Bolitok, Lipay, and Pangatpat; Sitios Longos and Sawmill

**Issues and Problems**

***(1) Mining in Sta. Cruz***

Mining activities are causing increasing siltation in the town's waters. The uplands of Sta. Cruz and neighboring Candelaria are reportedly subject to mining operations by a Chinese company,

the Yinglong Steel Company and the Zambales Diversified Minerals Corporation. (See Figure 49) Tailings and debris from the operations have led to noticeable siltation along the town's rivers and streams, and discoloration of the soil and water.

*Figure 49. Most of the mining activities observed on satellite imagery are located within the upland areas of the Municipality of Sta. Cruz. Unfortunately, rivers and tributaries carry tailings into neighboring municipalities.*


Fishers residing at Barangay Naulo, where the Bayto River drains to the sea, have complained of silt and sediments from the mining operations flowing out and destroying the coral reefs in their area. (See Figure 50 to 59)

*Figure 50. The mining operations and deforestation are visible from the sea off Barangay Naulo, Municipality of Sta. Cruz.*

*Figure 51. Fishing vessels at Barangay Naulo, Sta. Cruz, Pangasinan.*

*Figure 52. FIshers say that the beach used to be white but has now turned brown.*

*Figure 53. A closer view of the formerly white beach.*

*Figure 54. Bayto River is murky and discolored due to mine tailings from the upland areas.*

*Figure 55. A close-up photograph of rocks at the Bayto River bank shows a reddish layer of soil covering the rocks.*

*Figure 56. The soil along the river is slowly turning red due to the nickel ore sediments being carried by the water.*

*Figure 57. The discoloration of the soil is more evident in this photograph.*

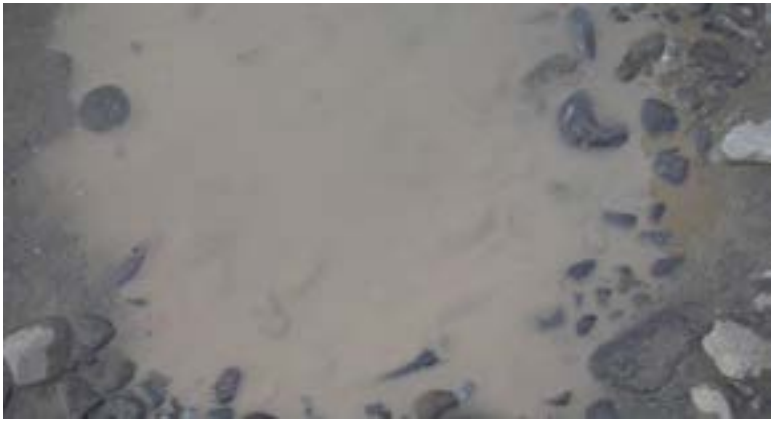
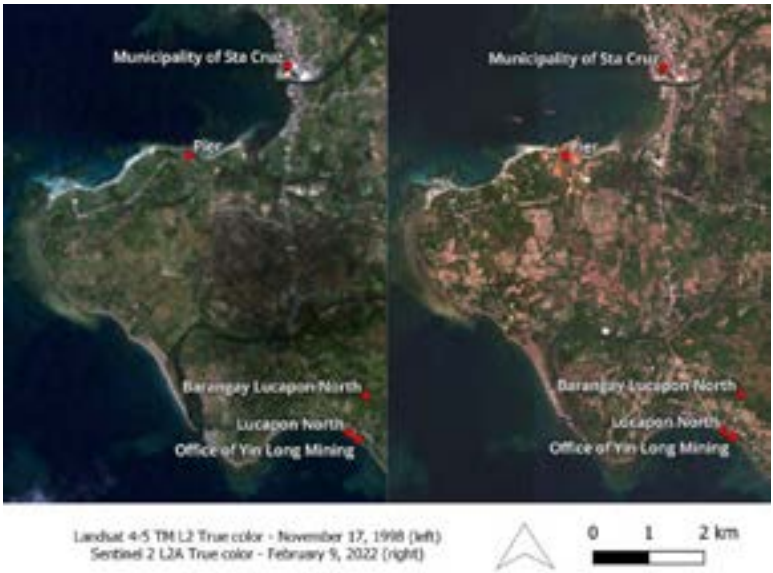


*Figure 58. The fishermen report that the waters often turn red due to the sediments carried from the nickel mining operations.*

*Figure 59. Landsat and Sentinel satellite imagery show the extent of changes to the forest/vegetation cover and sedimentation along the shore in the southern area of Sta. Cruz, Pangasinan.*



Fishers note that sediments and tailings often contaminate the shells that they used to gather from the shore to eat. Shell-fish-gathering used to be an alternative source of food to capture fisheries but appears to be no longer viable on account of pollution and siltation. The shortage of food is felt keenly during the times when they unable to fish, such as when there is a typhoon or during the full moon. (See Figure 60)

*Figure 60. The quality of the water and soil of the seashore are very important to the fishers, who gather shells from the shore for food especially if the fish catch is low.*

The fishers of Barangay Lucapon North have expressed major concern over the construction of a new pier by the Yinglong Steel Company which began this year. The pier will be used to load mineral oars on board ships for export abroad. Reportedly, the construction was without prior consultation with affected residents nor the requisite permit issued by the local government. The pier also appears to be endangering the residents' houses on the shore, by magnifying the strength of the waves and accelerating the rate of erosion. (See Figure 61) This phenomenon (increased erosion on one side) is common in cases of improperly or carelessly designed jetties or causeways.

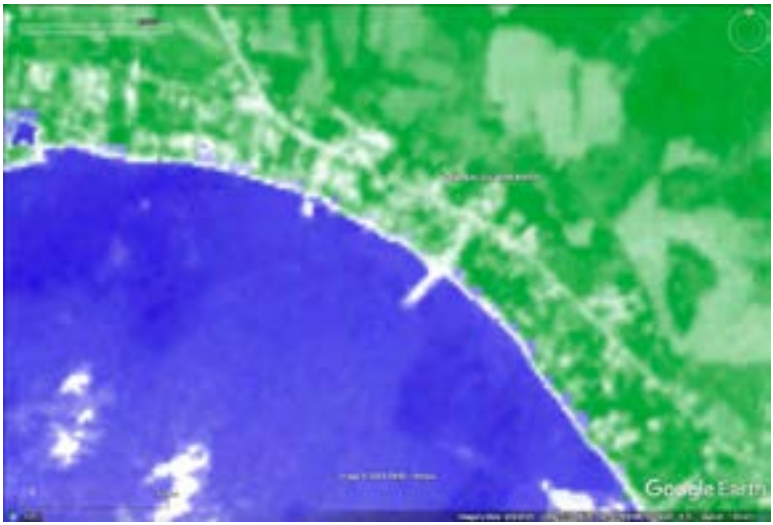
*Figure 61. Houses near the water in Barangay Lucapon North. The residents are worried over the possible effects of the construction of a new pier nearby.*

*Figure 62. A large white building belonging to Yinglong Steel Company oversees the construction of a new pier for loading mineral ore, reportedly without prior consultations or permit from the local government.*

*Figure 63. The middle part of the jetty/pier under construction in Barangay Lucapon North, Sta. Cruz.*

*Figure 64. The end of the jetty/pier reportedly extends 100 meters into the sea.*

*Figure 65. The series below compares imagery of Bgy. Lucapon North from GoogleEarth (Mar 2021) and Sentinel satellite images (07 Oct 2022) in optimized natural color (middle) and false color (third), showing the new jetty/ pier being constructed this year.*




### *(2) Difficulty in fishing livelihood*

It has become much harder for fishers to subsist and earn a living from fishing. They used to be able to use simple hook and line to easily catch fish, but now they are unable to. Fish have apparently disappeared from the shallow areas and they are forced to take to their boats to fish further from the shore. Figure 48 shows that the entire coastline of Sta. Cruz is lined with shallow coral reefs which make it an ideal nearshore fishing ground.

### *(3) Lack of security of tenure in housing*

Fishers have no security of tenure in their housing arrangements. They do not own the land on which they have built and maintain their residences. Due to the lack of available resettlement sites, most of them are clustered around the area of Barangay Naulo and Lucapon North.

### *(4) Intrusion of non-resident fishers into municipal waters*

Dynamite fishing and cyanide fishing are said to be rampant and continue to damage coral reefs in the town's confined waters. Dynamite fishing has been noted to take place even near their payao (fish aggregating device) installed in the municipal waters. These are reportedly carried out by non-residents of the municipality.

**Possible Legal Remedies**

There is a need to verify further the nature and status of the mining operation in the uplands of Sta. Cruz. The matter of sedimentation needs further verification by following the sediment flows upriver and upland, but if indeed verified, could be brought to the attention of the Mines and Geosciences Bureau of the DENR for possible violations of the mining activity's Environmental Compliance Certificate or terms of the relevant Mineral Production Sharing Agreement. This, however, assumes that the mining activity is a large-scale mining operation under a mining concession issued by the DENR. Verification of its nature, and confirmation that it is not an aggregation of small-scale mining activities, is needed.

The construction of the new jetty/causeway should be brought before the DPWH, DENR, and possibly the Philippine Reclamation Authority. The DENR has jurisdiction over all non-fishery uses of the foreshore and submerged lands of the public domain, while DPWH has jurisdiction over all constructions and permanent

works thereon. The construction also technically qualifies as a reclamation activity that is subject solely to PRA jurisdiction. Inquiries need to be made to verify whether, as reported, the same has indeed been carried out without a permit from the LGU, which in this case must subject the activity to a prior public consultation and must be supported by a resolution of the Sangguniang Bayan that it does not object thereto.

As with the other municipalities, the lack of tenure over their residential spaces may be addressed through representations with the LGU, which is mandated under Sec. 108 of the Fisheries Code to find suitable resettlement sites for fishing communities, to be implemented in conjunction with Executive Order 841, series of 2009 which requires LGUs to formulate local comprehensive land use plans, including the identification of areas of socialized housing and resettlement or relocation of sectors needing such assistance.

As stated, dynamite and cyanide fishing are prohibited under Sec. 88 of RA 10654 and the offender is liable for imprisonment ranging from 6 months to 10 years depending on the nature of the offense. However, the offenders must first be caught; thus, capacity building for law enforcement in the fishers' municipal waters is needed, as well as coordination with the PNP Maritime Group and Philippine Coast Guard to improve local law enforcement. Fishers may undergo training as Deputy Fish Wardens by DA-BFAR to enable community-based law enforcement and enhance the LGU's ability to control its waters.

CANDELARIA, ZAMBALES

| | |
|---|---|
| LGC Classification | 3rd Class Municipality |
| Land Area | 333.59 sq km |
| Estimated Marine Dimensions | |
| *Mainland shoreline* | 13.6 km |
| *Marine municipal waters* | 145 sq km |
| *Marine municipal waters </=200m depth* | 94 sq km |
| Demographics | |
| Total Population (2015 census) | 27,174 |
| Age distribution | |
| *0-14 years old* | 8,849 |
| *15-64 years old* | 16,455 |
| *65 years and above* | 1,870 |
| Population density/distribution per sq km | 81 |
| Total number of barangays | 16 |
| Coastal barangays / population | 8 / 18,057 |
| *Uacon* | 3,851 |
| *Sinabacan* | 3,906 |
| *Malimanga* | 1,228 |
| *Malabon* | 3,175 |
| *Panayonan* | 1,216 |
| *Libertador* | 1,416 |
| *Dampay* | 963 |
| *Binabalian* | 2,302 |
| Local Economy | |
| *Principal activities/sectors* | |
| *Internal Revenue Allotment (2016)* | 98,982,778 PHP |
| *Poverty Incidence (2018)* | 9.80 % |

**Affected Communities**

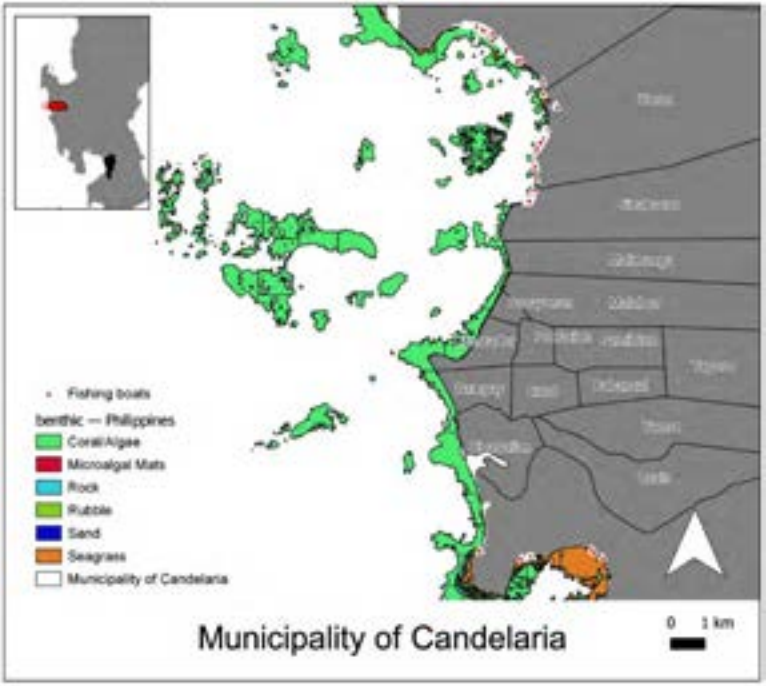
Barangay Uacon

**Issues and Problems**

***(1) Mining activities in Candelaria***

Pollution and siltation is taking place along the Uacon River and many other rivers and streams in the municipality of Candelaria. These are suspected to be due to the mining operations upstream in the uplands of Sta. Cruz and Candelaria. (See Figure 49) Fishers are finding less and

*Figure 66. Map of the Municipality of Candelaria, Zambales, showing the relationship between fishery habitats/resources and fishing communities indicated by fishing boats located along the shore*




less fish in their rivers and streams, which also happen to be their principal sources of freshwater. (See Figure 67 and 68)

Siltation is smothering coral reefs and nearshore fishing grounds are also being lost. Fishers noted that they can no longer catch fish such as bisugo, anglat, talakitok, and lapulapu which used to be plentiful in the sea.

It is also reported that the waters in remaining fishing grounds in the sea sometimes turn red, similar to the experiences of fishers in neighboring Sta. Cruz and Masinloc, due to the pollution produced by nickel mining activities taking place deeper

inland. Pollution and sediments have contaminated the shellfish that are gathered by residents along the shore.

*Figure 67. The soil of the banks of the Uacon River are seen to be contaminated by mine tailings which turn it reddish-brown.*

*Figure 68. The waters of the Uacon River and nearby streams have turned murky, and reddish-brown layers cover the river bed.*

*(2) Lack of security of tenure*

Fishers of Barangay Uacon are concerned over the lack of security of tenure in their settlement areas. They are congregated in one place, and do not own the land on which they live. They fear that they might be asked by the Governor to leave and settle elsewhere, but have nowhere to go.

*(3) Intrusion of non-resident fishers from neighboring towns*

Fishers complain of the occurrence of dynamite- and cyanide-fishing in their municipal waters, conducted reportedly by non-residents of the municipality. These are destroying their coral reefs and contributing to the loss of fishing grounds.

*(4) Suspected black sand mining operations*

Fishers have often reported the sighting of dredging ships anchored near the shores of Masinloc, Candelaria, Botolan, San Felipe, and San Narciso. They are concerned that these indicated black sand mining operations in the area, even though they have not actually located and witnessed them.

**Possible Legal Remedies**

Together with the mining activities in neighboring Sta. Cruz, there is also a need to verify further the nature and status of the mining operation in the uplands of Candelaria. The matter of sedimentation needs further verification by following the sediment flows upriver

and upland, and if indeed verified, could be brought to the attention of the Mines and Geosciences Bureau of the DENR for possible violations of the mining activity's Environmental Compliance Certificate or terms of the relevant Mineral Production Sharing Agreement. This, however, assumes that the mining activity is a large-scale mining operation under a mining concession issued by the DENR. Verification of its nature, and confirmation that it is not an aggregation of small-scale mining activities, are needed.

Also in the same way as Infanta and Sta. Cruz, the lack of tenure over their residential spaces may be addressed through representations with the LGU, which is mandated under Sec. 108 of the Fisheries Code to find suitable resettlement sites for fishing communities, to be implemented in conjunction with Executive Order 841, series of 2009 which requires LGUs to formulate local comprehensive land use plans, including the identification of areas of socialized housing and resettlement or relocation of sectors needing such assistance.

As with Sta. Cruz, the alleged non-residents carrying out dynamite and cyanide fishing must first be caught. Capacity building for law enforcement in the fishers' municipal waters is needed, as well as coordination with the PNP Maritime Group and Philippine Coast Guard to improve local law enforcement. Fishers may undergo training as Deputy Fish Wardens by DA-BFAR to enable community-based law enforcement and enhance the LGU's ability to control its waters.

Also as above mentioned, the concerns over black sand mining must first be brought up before the Mines and

Geosciences Bureau for verification or investigation, to determine whether any Mineral Production Sharing Agreement has been issued for black sand mining operations anywhere in the vicinity of the municipality. There may be a need to survey the coastline to determine whether there are any places where black sand mining is indeed taking place. The presence of foreign flagged dredging ships, particularly whether they are authorized to operate in Philippine waters, may be verified with the MARINA. However, this requires the identity of each and every vessel to be recorded and inquired into.

**BOTOLAN, ZAMBALES**

| | |
|---|---|
| **LGC Classification** | 3rd Class Municipality |
| **Land Area** | 254.29 sq km |
| **Estimated Marine Dimensions** | |
| *Mainland shoreline* | 12.5 km |
| *Marine municipal waters* | 73.4 sq km |
| *Marine municipal waters </=200m depth* | 73.4 sq km |
| **Demographics** | |
| **Total Population (2015 census)** | 24,584 |
| **Age distribution** | |
| *0-14 years old* | 8,560 |
| *15-64 years old* | 14,653 |
| *65 years and above* | 1,371 |
| **Population density/distribution per sq km** | 97 |
| **Total number of barangays** | 13 |
| **Coastal barangays / population** | 6 / 16,622 |
| *Bayambang* | 2,675 |
| *Batang* | 1,398 |
| *Cato* | 4,849 |
| *Nayom* | 2,093 |
| *Fatima* | 2,357 |
| *Poblacion* | 3,250 |
| **Local Economy** | |
| *Principal activities/sectors* | Fishing, farming, salt-making |
| *Internal Revenue Allotment (2016)* | 86,739,321 PHP |
| *Poverty incidence (2018)* | 12.80 % |

*Figure 69. Map of the Municipality of Botolan, Zambales. The municipality encompasses the watershed of the Botolan River.*


**Affected communities:**

The indigenous Aeta communities of Botolan

**Issues and problems:**

The indigenous peoples' communities of Aeta live in the uplands of Botolan. They complain of the conduct of electro-fishing in the inland streams and lakes within their ancestral domain. These are reportedly financed by businessmen and officials of the LGU. Although they do not fish in the marine municipal waters or the West Philippine Sea, they are included in the groups assisted by this Project on account of their interest in inland fisheries.

**Possible Legal Remedies**

Electro-fishing is clearly prohibited under Sec. 92 of RA 10654, the Philippine Fisheries Code as amended. It is an

offense administratively punishable by a fine of at least 5,000 PHP for the use of electrofishing devices, or at least 30,000 PHP or an amount equivalent to five times the value of the catch (whichever is higher), and confiscation of the catch and equipment or paraphernalia used. If pursued in a criminal case, the offender may be punished with imprisonment for six months.

**MARIVELES, BATAAN**

| | |
|---|---|
| **LGC Classification** | 1st Class Municipality |
| **Land Area** | 153.9 sq km |
| **Estimated Marine Dimensions** | |
| *Mainland shoreline* | 57.4 km |
| *Marine municipal waters* | 416.0 sq km |
| *Marine municipal waters </=200m depth* | 395.4 sq km |
| **Demographics** | |
| **Total Population (2015 census)** | 127,536 |
| **Age distribution** | |
| *0-14 years old* | 35,536 |
| *15-64 years old* | 87,496 |
| *65 years and above* | 4,152 |
| **Population density/distribution per sq km** | 829 |
| **Total number of barangays** | 18 |
| **Coastal barangays / population** | 10 / 93,254 |
| *Alas-asin* | 18,868 |
| *Balon-Anito* | 15,820 |
| *Batangas-II* | 5,811 |
| *Biaan* | 2,663 |
| *Cabcaben* | 7,665 |
| *Ipag* | 11,503 |
| *Poblacion* | 8,458 |
| *San Carlos* | 1,481 |
| *San Isidro* | 6,515 |
| *Sisiman* | 7,267 |
| *Townsite* | 7,203 |
| **Local Economy** | |
| *Principal activities/sectors* | |
| *Internal Revenue Allotment (2016)* | 192,218,938 PHP |
| *Poverty incidence (2018)* | 4.90 % |

Offenders will need to be reported to the Philippine National Police, or apprehended by the law enforcement officers of DA-BFAR, or by Deputized Fish Wardens. Capacity-building and training to be officially deputized as Fish Wardens by the BFAR may be undertaken.

*Figure 70. Map of the Municipality of Mariveles, Bataan, using GoogleEarth. Municipal water boundaries are drawn in Red.*


**Affected communities:**

Barangay Biaan

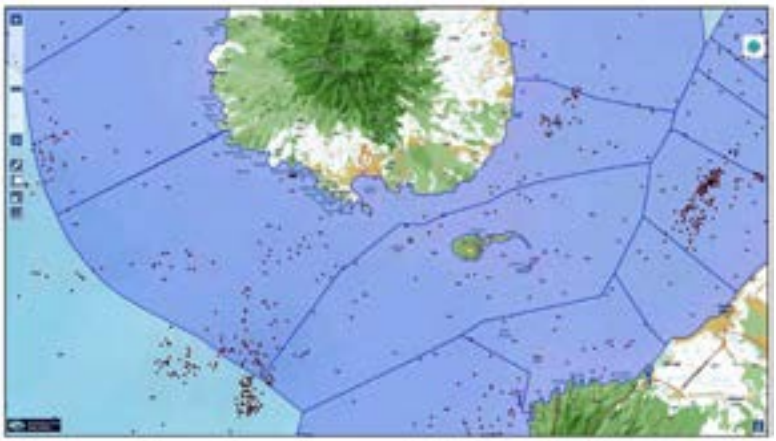
**Issues and Problems:**

***(1) Intrusion of non-resident fishers into municipal waters***

Fishers complain of fishers from other municipalities and provinces intruding into the waters of Mariveles

and using destructive fishing methods. Most destructive are the hulbot vessels, also known as Danish seines, which use conical nets with a pair of wings with hauling ropes passing through a metallic ring permanent attached to a tom weight and hauled by the fishing vessel; the use of these fishing gear and vessels are prohibited or at least heavily regulated depending on the area of operation.

*Figure 71. Data from VIIRS processed by KaragatanPatrol.Org show the location of night-time fishing activities in the vicinity of Mariveles, Bataan. Residents of Biann complain that some of these activities are carried out by hulbot (purse seine) vessels from Barangay Sisiman, but owned by persons from other provinces.*



Many of these vessels are reportedly based in Barangay Sisiman, although they are all reportedly owned by people in Mindoro. Hulbot fishing captures even the small fish, and compete with municipal fishers for dwindling fish stocks. The gear damages coral reefs, and also produce a large amount of by-catch, which are wasted and thrown back into the sea. Fishers complain that it is not clear what is prohibited and what is not.

*Figure 72. Sentinel satellite imagery shows the presence of several large banca, likely large commercial fishing vessels equipped with hulbot gear, anchored at a cove in Barangay Sisiman, Mariveles.*


Fishers also reported the presence of trawl fishing vessels which catch much fish, squid, and anchovies, spearfishing combined with compressor fishing, and the use of dynamite- and cyanide-fishing. The latter two are said to be engaged in by fishers from Cavite and Navotas.

### *(2) Increasingly difficult to fish for livelihood*

Fishers complain that it has become increasingly difficult to rely on fishing for the sustenance and livelihood. In the past, they used to catch 25 kilos or more of fish on a single trip, but now they can catch only about 4 kilos. Meanwhile, hulbot fishing can produce as much as ten tons of fish in a single operation.

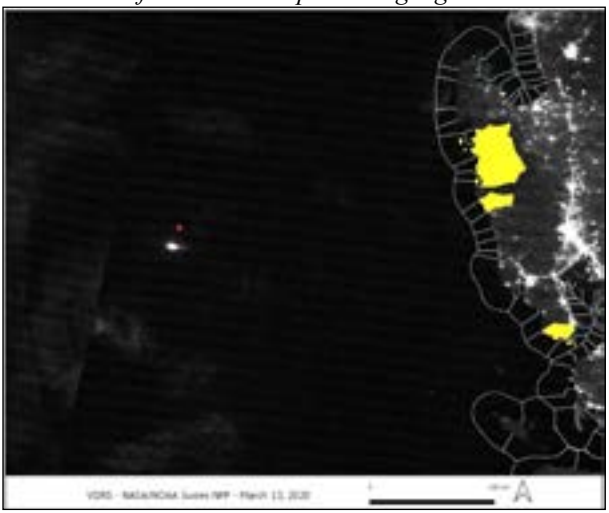
**Possible Legal Remedies**

The operation of purse seine or Danish seine vessels is prohibited under DA-BFAR Fisheries Administrative Order No. 246-1, series of 2018. The owner, operator, boat captain, and organizer/recruiter are administratively liable for a fine of five times the value of the catch, or 2,000,000 PHP, whichever is higher, and confiscation of the gear. The fishworkers are liable for 20,000 PHP or community service in case of failure to pay the fine. If convicted in court, the owner, operator, boat captain, and recruiter/organizer may be imprisoned for two to ten years, and fined for 4,000,000 PHP. All persons involved may also be blacklisted by the DA-BFAR.

The operation of hulbot appears to take place in deep waters well offshore, in places where there is minimal law enforcement presence. Coordination with the Philippine National Police and Philippine Coast Guard are needed, and a communication and reporting system needs to be established to strengthen their presence. Fishers may also seek capacity-building and consider deputization as Fish Wardens by the DA-BFAR to establish community-based law enforcement.

## SCARBOROUGH SHOAL AND THE WEST PHILIPPINE SEA

*Figure 73. Nighttime lights imagery from a US satellite equipped with the Visible Infrared Imaging Radiometer Suite are calibrated to also detect the lights emitted by fishing vessels at sea. Here a patch of lights indicate fishing south of Scarborough Shoal. Luzon and the municipal water boundaries of coastal LGUs are indicated. Fishers of BIGKIS-PDI come from the municipalities highlighted in Yellow.*



### Affected communities

Commercial fishers of Infanta (Pangasinan), Masinloc and Sta. Cruz (Zambales)

### Issues and Problems

#### *(1) Fishers are prevented from fishing inside Scarborough Shoal*

Fishers and fishworkers manning the commercial fishing vessels that used to operate in Scarborough Shoal complain of

the continuing inability to access and conduct fishing inside the lagoon of Scarborough Shoal. Philippine commercial fishing vessels are usually large traditional wooden banca's with outriggers, manned by 10-15 crew, and carry one or two smaller 2-person banca's. (See Figure 70) For Scarborough Shoal, they use traditional fishing gear like nets, hook and line, traps, and spear-guns. Before 2012, their fishing expeditions lasted for weeks on end because they could shelter inside the shoal's calm waters. Carrier vessels could rendezvous with them at sea to bring back their catch and resupply their provisions.

Many commercial fishing vessels in Zambales and Pangasinan used to fish regularly inside Scarborough Shoal but are now prevented from doing so by the China Coast Guard (CCG) and Chinese maritime militia (CMM) vessels that maintain a constant presence thereon. (See Figure 71) Often, the larger CCG ships deploy smaller rubber boats to approach the smaller Philippine vessels, with megaphones blaring at them, "No fishing! No fishing! Go! Go!" (See Figure 72) At the height of Philippine-Chinese tensions, there were incidents of their vessels being rammed by the China Coast Guard. In 2019, the F/B GemVer, a vessel based in Mindoro Oriental was rammed and sunk by a Chinese fishing vessel at Reed Bank. These kinds of incidents have caused Filipino fisheries fear and anxiety from the mere sight of CCG and CMM vessels; they give them wide berth whenever the latter are detected. Many who are able to reach the shoal's perimeter have been forced to surreptitiously enter the shoal at night to be able to fish; but during the day they have to stay outside the perimeter of the shoal.

Unfettered Chinese giant claim digging operations inside the shoal, which involved the use of propellers to cut up the coral reefs to enable Chinese fishermen to dig out and extract giant clams, have wrought serious damage and diminished the shoal's

productivity. These activities have been widely reported in the news. In the past, individual fishers could make from 8,000 to 10,000 PHP per week from fishing there, but now they are lucky to make 2,000 to 3,000 PHP, if any at all. Such small amounts are often immediately used up as soon as the fishers return to shore, in order to pay for debts incurred by them and their families.

*Figure 74. A typical commercial fishing vessel leaves for Scarborough Shoal. Filipino commercial fishing vessels are usually large traditional banca's made of wood with bamboo outriggers.*

*Figure 75. Chinese maritime militia vessels encountered by the fishermen and preventing them from entering Scarborough Shoal.*

*Figure 76. CCG 3305 deploys a rubber boat near Scarborough Shoal. The boat is manned by armed personnel, who use megaphones to warn the fishermen away.*

### *(2) Fishing outside Scarborough Shoal is increasingly dangerous and unprofitable*

Fishers who fish outside Scarborough Shoal cannot do so west of the shoal due to rough sea conditions and try to stay on the eastern side. They have installed fish aggregating devices (payao) in the deep sea around the shoal to make up for the lost fishing grounds inside it. Their problem however is that when the weather or sea conditions turn bad, they are unable to seek shelter in the calmer waters of the shoal's lagoon. The Chinese Coast Guard block them and make them go away. Sometimes the Chinese Coast Guard deploy buoys and claim that the waters are Chinese waters that cannot be entered. As a result, they are unable to fish for any length of time and sometimes they have to give up the voyage as soon as the weather turns bad, without even breaking

even on their investment in fuel and supplies. It takes them at least 18 hours to return to Pangasinan or Zambales from Scarborough Shoal. This has made fishing at Scarborough Shoal increasingly unprofitable as well as dangerous.

### *(3) Fishers are losing catch to destructive foreign fishing vessels.*

Commercial fishers that fish elsewhere in the open waters of the West Philippine Sea usually do so some 25 nautical miles from Scarborough Shoal, and deploy payao in the surrounding open sea. The payao represent significant investments, costing at least 100,000 PHP each, and do not last very long because the sea conditions eventually break them apart. They require replacement usually within two to three months. However, foreign fishermen, either Chinese or Vietnamese, directly and unfairly compete with the fishers by catching the fish that aggregated by their payao even before the latter are able to visit them to collect the catch. The fishers have also seen such foreign fishing vessels use very strong super-lights, each bulb of which can emit from 500 to 5000 watts. The large number of lights on a single vessel can generate so much heat that they kill the small fish and larvae floating near the surface of the water around the payao.

These have caused fishing in the West Philippine Sea to become unprofitable. They used to be able to break even within three days from commencement of fishing operations, but now, they would be lucky to do so even after spending more than a week at sea.

*Figure 77. Data from VIIRS satellite imagery processed by KaragatanPatrol.org show the positions of fishing vessels around Scarborough Shoal, all detected during the first quarter of 2022. There are more likely to be either Chinese or Vietnamese fishing vessels, as the VIIRS algorithm is calibrated for their light intensity. Also, Filipino commercial fishing vessels stay east of the shoal because they cannot handle the rough open seas west of it.*

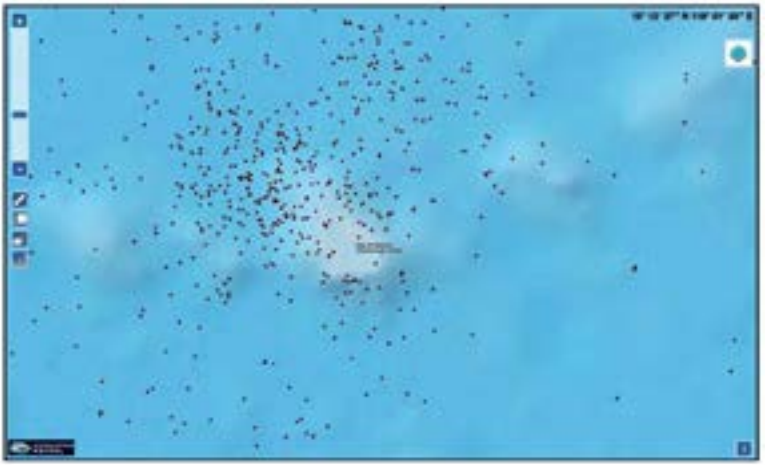


*Figure 78. Vietnamese vessels with intense super-lights are frequently sighted by the fishers, and they compete with the latter for fish aggregated by their payao.*

## Possible Legal Remedies

Of all the problems of the fishers, this is the most difficult to resolve because (a) it necessarily involves the Philip-

pines' foreign relations, (b) to be effective, it must have the full support of, and coordinated with, the Philippine Government, and (c) it requires more extensive documentation and evidence, and (d) it requires a diplomatic solution just as much as a legal solution.

The problem faced by the fishers is at the heart of the Philippines-China maritime disputes. Although by virtue of the South China Sea Arbitration Award rendered in 2016, the legality of Chinese fishing in the West Philippine Sea has been firmly rejected, the application and implementation of the 1982 United Nations Convention on the Law of the Sea is fraught with subtle nuances that affect the availability of legal remedies. In Scarborough Shoal, for example, the admitted existence of six rocks above high tide on the shoal generates a 12 nautical mile territorial sea around the shoal that is subject to a legitimate territorial dispute. This technically subjects activities taking place within that area to competing exercises of jurisdiction, the nature and extent of which are ultimately limited by the United Nations Charter, particularly on the non-use of force, and which cannot be directly invoked by the fishers unless their cause is fully supported and carried by Philippine diplomacy. Legal remedies that affect the plight of the fishers have to be pursued in the international arena between States and cannot be pursued by them completely independently of national government support. In several cases, the Supreme Court has repeatedly ruled that the determination and implementation of foreign policy, or any aspect thereof, being within the exclusive realm of the Executive Branch, the latter cannot be forced to act in a certain way through judicial remedies barred by the principle of separation of powers.

What can be done in the meantime, however, is to enable the fishers to assist the Philippine government pursue its diplomatic and legal remedies through the systematic documentation of grievances and acquisition of firm evidence, and properly educating the wider public on events

and problems in the West Philippine Sea. Certain reported acts of the CCG and CMM, such as deliberately inflicting damage or injury, may be subject to diplomatic and possibly administrative or judicial remedies, but it all depends on context and circumstances of the incidents in question. The pursuit of generalized and collective grievances will inevitably be within the purview of foreign policy only, but must have the full and unwavering support of the Filipino people. Specific incidents have a chance of being subject to administrative and judicial actions, but these require comprehensive documentation and specific relevant evidence. Considering also that the maritime disputes are still ongoing, and Philippine responses to incidents must be subject to carefully planned and executed strategy in light of the potential adverse parties' well-known abilities to pursue and press their claims, the lines of effort in securing remedies for the fishers cannot be very public and open to wide discussion.

For this reason, the possible legal remedies are not included in this report but will be more carefully discussed and handled with utmost discretion with a much closer circle of participants until the time and opportunity are ripe for more public involvement.

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