

TUKMA DANAW

"Rectified Lagoon" - Save the Philippine Seas, Protect Our Sovereignty

1.What is your proposed solution to the challenge statement?

- Tukma Danaw shall develop an application with mechanisms to track, detect, and monitor boats and ships entering and exiting the Philippine territorial boundaries.

2.What problem does it address? (E.g. detection, reporting, analysis, etc.)

- The main problem addressed by our solution is the difficulty of tracking the whereabouts of boats and ships in the Philippines' water territories. This involves the detection of where these boats and ships plan to navigate or take their routes. Illegal fishing activities such as dynamite blasting, poisoning bait, fishing on unchartered waters, and the like are often taken for granted because of little to no regulation and protection. Because of this, rampant illegal acts continue to happen often committed by fishermen as well as multinational private corporations. Tukma Danaw's solution, however, acts as a mediator in protecting the Philippine seas and ensuring safe, legal practices of fishing and water transport.

3.Why do you want to take part in Karagathon?

- Tukma Danaw wants to take part in Karagathon since it is able to provide an avenue in crafting a viable solution that would help reduce incidences of illegal fishing in Philippine waters, thus being able to provide a proper source of income for the surrounding local communities (which may source their income from local fishing industries) and simultaneously adds further protection to marine biodiversity and their respective habitats. The Philippines is often touted as one of the most biodiverse countries in the world, and its location in the coral triangle has cemented this distinction. Ultimately, joining this event is our way of showing our gratitude and concern to the Philippines as it gives us a platform to be able to provide solutions and raise awareness on the issue, and allows us to speak up for our fellow countrymen, the marginalized, and disadvantaged Filipino fishermen. Most importantly, Tukma Danaw, like everyone else, believes it is one's rightful duty to take care of our environment.

4.What describes your solution best?

- The solution is best described as an efficient and systematic way to track, detect, and monitor boats and ships within the territorial waters of the Philippines. This type of system would let coastguards or (enforcers) determine unusual activities happening in Philippine seas so that they can immediately investigate and respond to a given situation. This is a tool that will only aid in observing the activities within the territorial seas and will not replace the members of the navy from their responsibilities in protecting the Philippine seas.

5.What is your team's specialization? App development and Code

NAVYGATOR

SPOT A CASE? HELP US TRACE!



TUKMA DANAW

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A Policy Proposal
Submitted to the panel of Oceana Philippines
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I. Introduction

A. Identification of the Problem

The Philippines is a country considered to be rich in marine resources. Our geographical position, which has often been considered favorable for fish to thrive in, has encouraged the development of a diverse and plentiful marine ecosystem, which has also enticed many to participate in the fishing industry. However, this also led to a problem that has often been reported in territories with a thriving fishing industry: illegal fishing.

Illegal fishing is considered a pressing problem that the country faces today. They pose a serious threat to our marine ecosystem and can be damaging in the long run. For example, dynamite fishing often leads to the disruption of marine ecology by killing animals as small as planktons to the larger fishes making it more difficult to find a food source for other fishes. Not only that, it kills juvenile fishes and destroys coral reefs, which serves as nesting grounds for a lot of fishes. This is most rampant in municipal waters, most often committed by commercial fishing boats. Because of this occurrence, it results in the population of fishes diminishing.

Commercial fishing wrecks havoc because of overfishing and illegal fishing in the municipal waters. These often go unreported or are simply dismissed due to negotiations or "*hangyo*". This negotiation scheme was carried out by offering a tradeoff such as giving crabs and fishes in exchange to go off unnoticed. This is tagged as "pass by and fish". What happens after this is once the fishing operation is done, these fishers were not caught in the act so no evidence can be presented against them for illegally fishing. Because of the failed burden of proof, there still remains a continued decline of fish catch caused by illegal commercial fishing. Interventions done by LGU was to ban commercial fishing in the municipal waters. However, extra caution ought to be taken such as withholding their license operations and possibly giving them a fine.

Once the uncharted fishing operation is done, these commercial fisher violators are not charged given that they were not caught in the act nor were witnesses or testimonials presented, so no evidence can be presented against them claiming their illegal fishing activity. There is a continued decline of fish catch because of illegal commercial fishing. It would be optimal to ban commercial fishing or impose stricter checkpoints and clearances before fishing.

According to the Food and Agriculture Organization of the United Nations (FAO UN), in the Philippines, minimal allowance/funds for maintenance and monitoring of fishing activity in the local level have not increased since 2016. These LGUs are in need of an increase in funding for optimal patrol measures.

Due to our fragmented geography and lack of proper resources, incidents of illegal fishing often go unnoticed or unreported and may encourage others to take up illegal practices that can be harmful to our waters when proper action against violators isn't taken up. Authorities don't have the proper tools that allow them to track violators and/or monitor incidents, which only exacerbates the problem. Local Government Units are facing enforcement challenges in

Municipal Waters maintenance and protection due to lack of assistance. The LGU's services and intervention need assistance through funding and expanded manpower. Examples include the docking of commercial fishing vessels in areas of jurisdiction; no longer operational boats are docked and take up unnecessary space.

B. Objectives

This policy proposal aims to (1) regulate and combat the rapid influx of illegal fishing activity in the Philippines' territorial waters and (2) establish protection and management schemes in tracking, tracing, and monitoring fishing activity through the use of a developed open-source mobile application.

II. Proposed Solution

Tukma Danaw aims to create an application that helps monitor and trace incidents of violations in Philippine waters. This is done through the implementation of a built-in GPS tracking scheme where a user may send reports and information through the Navygator App.

Geotagging methods will be employed such as implementing GPS tracking devices in fishing licenses and "GPS Darts", a lightweight magnet-based GPS tracking device that could be attached to a ship. Navygator allows users to access location info for a variety of ships used for the reporting process.

Development of a mobile application. A mobile app will be developed for the purposes of monitoring and tracing fishing activity in the Philippines. Its features shall allow both fisherfolk and governing bodies such as the Philippine Navy and Coastguard to track and report incidents wherein violations have occurred in specific areas. This will be developed by the Department of Information and Communications Technology (DICT), and shall consult the Department of Agriculture (DA), Philippine Fisheries Development Authority (PFDA), and Local Government Units (LGUs) which specialize in aquaculture and fisheries management.

The application draws inspiration and models after COVID-19 tracing apps; in essence, it allows the community to participate in the contact-tracing process. In the context of Navygator, this would help alleviate the pressure on authorities when it comes to reporting and filing an incident, as it will identify violators that would previously go unnoticed as coast guards may not be deployed in those areas. Additionally, the enhanced participation of local fisherfolk helps enhance their livelihoods as interventions to stop illegal fishing practices which often affects fishes negatively enhances both the quality and quantity of fish that they catch.

Features of the Navygator app include pinpointing a specific location on a map, reporting information when a violation was committed (i.e. time, description, other information) as well as an overview of fishing activity analytics in a specific area and timeframe.

Regarding the mechanism of the application, it is currently delimited to smartphones and requires connectivity. However, it is noted that the usage of mobile data is minimal and does not pose harm to faster consumption. It is recommended that the application will be granted a free

access data subscription by the DICT and NTC. This scheme allows users to access the Navygator app without incurring data charges. Using and availing of this promo will vary per telco (Globe, Smart, TNT, etc.), however, the perks and benefits of having no data charges while using the Navygator App remains the same for all networks.

As part of this application, official fishing licenses granted to all fisherfolk in the Philippines will feature built-in GPS tracking devices which will help in the tracking process. Additionally, coast guards will be given magnet-based GPS dart guns which they can use to attach GPS trackers on the boats of fishermen who may not carry a license. These GPS trackers can be used to mark ships which have performed certain illegal activity on the map of the application.

III. Conclusion and Potential Problem Analysis

One of the major problems when it comes to filing charges against violators is that they often manage to escape detection as the Philippine (coast guard/navy) is ill-equipped when it comes to monitoring the situation in Philippine fishing grounds. Hence, they are unable to track and trace reports more efficiently. Additionally, the process of notifying and identifying a possible violation. If violators aren't penalized or traced as soon as possible, they can cause further damage to the marine environment, as their practices are often unsustainable.

The introduction of Navigator, an app that can pinpoint locations of fishing activity and be used to receive or report cases of accidents or marine law violations, encourages community participation and helps pass on the task of penalizing violators which helps coast guards and maritime officials tackle the problems with violators much more easily. This also creates a mutual benefit between fishing authorities and local fisherfolk wherein the authorities are able to track and identify illegal fishing incidents more accurately while the fisherfolk will be able to benefit from the enhanced enforcement of the law which helps in growing the population of healthy fish which wouldn't be traditionally possible when certain fishing vessels would continue illegal acts such as dynamite fishing or illegally fishing in certain fish breeding grounds that consequently affect the quality and quantity of a fisherman's catch.

Considering how the Navygator app only runs on mobile smartphones, it is also helpful for the LGUs to coordinate with their local governing bodies. This can be done by providing contact numbers, point persons, and manual reporting procedures for fisherfolk and concerned citizens.

IV. References

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