The Philippines.

Two fishing communities in Batangas province, the Philippines, were studied for this project: one in Bauan municipality and one in Lobo municipality. They were chosen for their variation in terms of the influence of non-governmental and governmental conservation education efforts, the presence of tourism and marine protected areas, the different methods of fishing subsistence used in each site, the proximity of industry, and the relative health of the land and the marine habitat. The two communities are part of the southern Tagalog region where Tagalog is spoken.

Figure 1: The Coral Triangle

Both communities are located along the Verde Island Passage, a part of the Philippines known as one of the most important marine ecological zones in the world. The entire Philippines is part of the Coral Triangle (see Figure 1),

> …a marine area located in the western Pacific Ocean. It includes the waters of Indonesia, Malaysia, the Philippines, Papua New Guinea, Timor Leste and Solomon Islands. Named for its staggering number of corals (nearly 600 different species of reef-building corals alone), the region nurtures six of the world's seven marine turtle species and more than 2000 species of reef fish. The Coral Triangle also supports large populations of commercially important tuna, fueling a multi-billion dollar global tuna industry. Over 120 million people live in the Coral Triangle and rely on its coral reefs for food, income and protection from storms. (World Wildlife Fund)

The Philippines is widely recognized as a global priority for marine conservation. There are more marine animals in a meter of ocean water in the Philippines than anywhere else in the Coral Triangle. The Verde Island Passage, the location of the two field sites, is located between southern Luzon and Mindoro islands (see Figure 2). It has the greatest variety of shore-fish species in the Coral Triangle, indicating that a vast wealth of other

species resides there as well. For that reason the Verde Island Passage has been dubbed "the center of the center of marine biodiversity" in the global context.

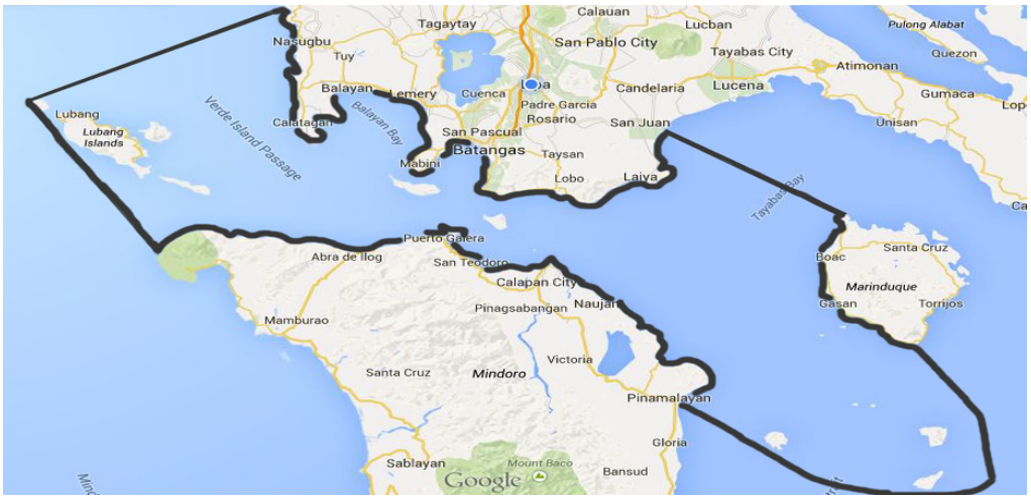

Figure 2: The Verde Island Passage

Bauan, Batangas is a municipality of 81,000 (2010) located on the shore of Batangas Bay around 10 kilometers from Batangas Port. The research was done in a seaside barrio of Bauan known for its high concentration of small-scale baby purse seiners with gill nets (*pukotan*) (see Figure 3). Various other types of subsistence and smaller-scale fishing methods are employed with a variety of smaller vessels.

Figure 3: *Pukotan*: Baby Purse Seiner, Bauan, Batangas

Batangas Bay itself measures around 85 square miles in surface area with 290 miles of coastline. Bauan is the most industrialized municipality in Batangas Province. The

municipality's development priority appears to be industrializing and capitalizing on its strategic location with regards to Batangas Port. However, the municipality is home to a number of Marine Protected Areas that are used by local beach and dive resorts for tourist snorkeling and scuba diving. The barrio in which the research took place does not have one of the protected areas. The bay in general is a heavily-trafficked shipping route. Deep sea *pukot* fishermen, whose expeditions take them to all areas of the bay, must be careful to steer clear of these large ships. Numerous industries and communities line the coast. Much of the marine and land habitat has been heavily compromised.

Changes in seasonal weather patterns including the increasing unpredictability of weather and storms affects them greatly. The boats, nets, and other equipment require a substantial capital investment to maintain, due to the large size of the vessels and nets. A crew of around 15 men must be maintained as well as several smaller vessels that assist in fish capture. Costs to launch the boat, to beach it, or to engage in fishing expeditions are high, and include fuel and municipal fishing permits and boat registration. The vessels must be beached during stormy weather and re-launched later, a labor-intensive and costly proposition.

Uncertainty caused by changing climate and weather patterns or decline in fish populations can spell permanent economic collapse for a boat owner and their crew members. Smaller-scale fishers (for example those involving smaller boats and crews of 1-5 men) have more flexibility in terms of altering their fishing patterns in response to unusual and unexpected weather variation; they also have lower economic stakes with lower capital investment.

Lobo, Batangas, the location of the second coastal field site, is a city of 37,000 (2010) approximately 60 km east of Bauan. In contrast with some areas of Bauan, its entire coastal area is a relatively pristine marine and shoreline environment. There are no large industries in the area, and its location outside Batangas Bay means it is relatively unaffected by major shipping traffic. The municipality has a progressive agro-tourism vision of growth that emphasizes ecological balance, sustainable growth (social, cultural, and economic), and food. There are many beach and dive resorts. In 2005, the Lobo municipal government declared one area of its shoreline a fish sanctuary and now the entire three kilometers of shoreline and 300 meters (980 feet) fronting the shore has been declared a protected area. Fishermen in the small coastal barrio where the research took place do primarily part-time subsistence fishing and some cultivation. They use a variety of fishing techniques but none as large as the *pukot* fishing found in Bauan. Artificial reefs have been installed in some areas, and exposure to governmental and non-governmental conservation training among locals is more common in Lobo compared to Bauan.