

MY COMMUNITY, OUR EARTH

MIAMI

A Comparison of Mangrove Communities: Florida and Philippines

Project Director: Teresa Casal
Team Leader: Ashley Granada

Problem Statement: How do the mangrove communities of South Florida compare to those found in the Philippines?

Background

The Sunshine State, with its beautiful vibrant and soothing environment is not only home to local residents, but is notoriously known for its exquisite attractions such as the Florida Everglades, as well known for its various species of mangroves along the coast. There are more than 50 species of mangroves around the world, but in Florida there are three main species of mangroves native to south Florida which include the red mangrove (*Rhizophora mangle*), Black mangrove (*Avicennia germi-*

nans) and white mangrove (*Laguncularia racemosa*). With about 500,000 hectares of these species spanning across the coast the Florida mangroves are essential components in the balance of our ecosystem due to the mangroves ability to trap and cycle various organic materials, circulate important nutrients, as well as filter chemical elements in the coastal ecosystem. This holds importance due to it being a major contributor of the basic nutrients found in the food chain for marine organisms which inhabit it. Mangroves can thrive in different types of water, such as fresh water, brackish and salt water, as well as survive in various seasonal temperature fluctuations as long as they do not drop below 5 degrees Celsius.

Mangroves are also most commonly found

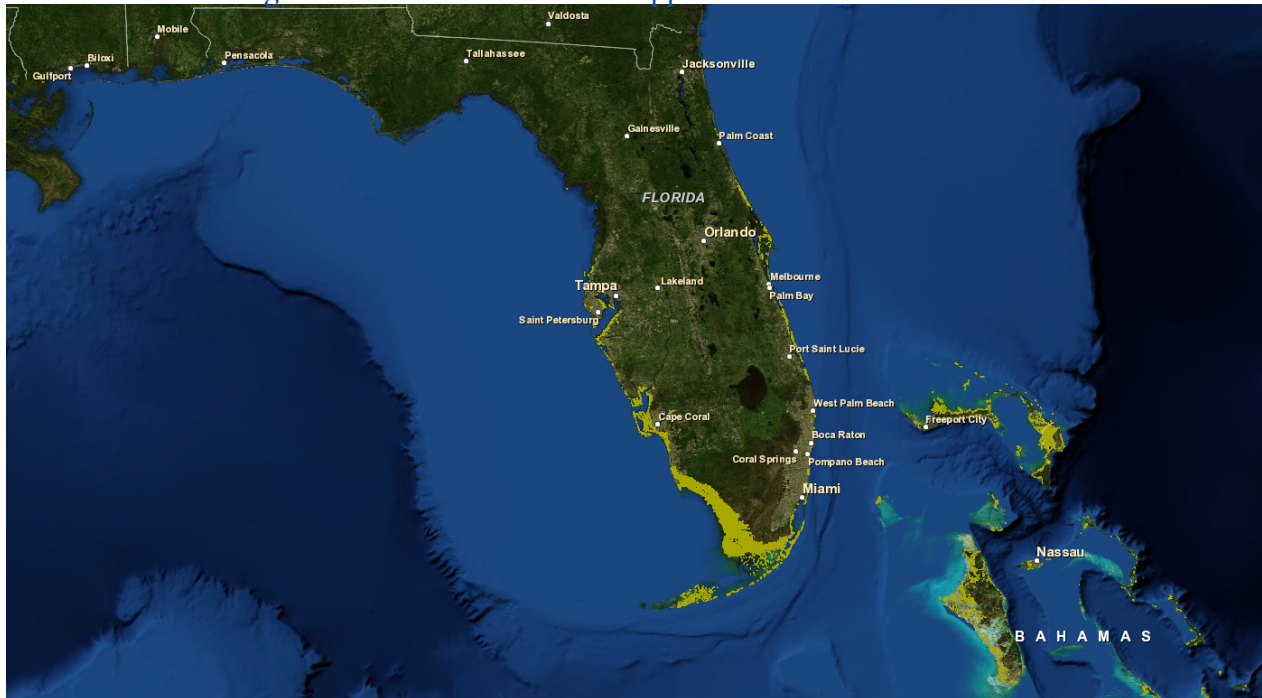


in the tropics and subtropical regions across the world. Florida's mangroves are tropical species making them sensitive to extreme temperature fluctuations and subfreezing temperatures. Research indicates that water temperature, salinity, tidal fluctuations, and soil also affect their growth and distribution across the coast. Mangroves are common as far north as Cedar Key on the Gulf coast and Cape Canaveral on the Atlantic coast. Black mangroves can occur farther north in Florida than the other common species found in Florida. But most commonly these species grow intermixed, sometimes in the same area. Mangroves can also help prevent erosion by stabilizing shorelines through their specialized root systems as well as filter water and maintain water quality and clarity.

Red Mangrove: these trees exhibit arching prop or aerial roots extending downward from the trunk and lower branches. Since most of these roots extend into shallow waters, they are effective at providing shelter for small marine organisms, dissipating wave energy and increasing surface area for sponges, algae's, mollusks, tunicates, and egg attachments. Black mangroves: are recognized by numerous finger-like projections (*pneumatophores*) that extend upwards above the sediment from the root system. The surface of the lance-shaped leaves is a dark green, and dull but the underside is a lighter, silver-green color without dark spots. The leaves are often coated with salt crystals, especially during dry periods. White Mangroves: can be identified by their leaf shape. The leaves are



Distribution of mangroves in Florida and the Philippines



Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swissstopo and the GIS User Community

more oval than the other two species and have a small notch at the tip. The two small bumps, one on either side of the stem just below the leaf blade also are important in the identification of white mangroves.

From approximately 54 species of mangroves 34 are considered major species with the remaining 20 minor. Scientists recognize 60 mangrove associates found in the world, of these it is said that Philippines has about 47 mangrove and associated species (26 families). While the mangrove species are found in what is known as the mangrove environment, the 60 other “associ-

ated” species can be found in habitats types such as beach forest and lowland areas. Bohol is one of the Philippines most abundant mangrove ecosystems, one of the Philippines small islands; it is enriched with mangrove forests around its river systems, estuaries and off shore islands. Bohol has one of the highest biologically diverse mangrove ecosystems in the world with 26 mangrove species found on its shores. In the Philippines, mangroves are a good source of wood, timber, and shingles for housing material. They are also useful for firewood charcoal, and of course poles for fish traps. Several species provide high-quality



ity commercial timber, which can be used for various building materials and also as a source of fuel. In the Philippines, mangrove wood has been widely known to be used as a perfect fuel source for bakeries due to their high heat and charcoal value. For the Philippines these mangroves prove to have economic value as well, it is estimated that the value of a complete mangrove ecosystem ranges from \$500 to \$1,550 per hectare per year (US price). This value though has led to the destruction of mangroves across the Philippines due to land reclamation, tourism and the creating of fishing ponds. In an effort to raise environmental awareness among youth, the Philippine Red Cross (PRC) created the “Run, Plant and Care for the Mangroves and our Environment” project in order to help the youth have a better understanding of the conservation of its mangroves. In the Philippines planting mangrove trees are encouraged as a rehabilitation activity which is used to protect the mangrove forests as well as fishpond dykes and homes from sea surges and storm damage. This groups amazing achievement has led to more than 1,000 trees planted with plans to reach 15,000 trees by the end of this year.

Fieldtrip Experience

From the Deering Estate trip, my knowledge of mangroves was completely revolutionized. I had not a single clue of the various types of mangroves let alone their importance in our ecosystem. Through the weather and water quality it becomes clear how the productivity of mangroves is affected. It is es-

timated that about 14 billion pounds of trash are dumped into the oceans each year not only posing threats to the mangroves but our aquatic ecosystems. I’ve learned through this experiment the true importance of the conservation of mangroves and how we must act now in order to protect these delicate and vital species from future harm through simple acts such as proper disposal of trash or helping our community through mangrove restoration projects.

References

Bohol Philippines. (n.d.) *Mangrove Forests*. Travel guide. Retrieved May 8, 2013 from: www.bohol-philippines.com/mangrove-forests.html

Department of Environmental Protection (May 25, 2012). *Mangroves walking trees*. Retrieved May 7, 2013 from: www.dep.state.fl.us/coastal/habitats/mangroves.htm

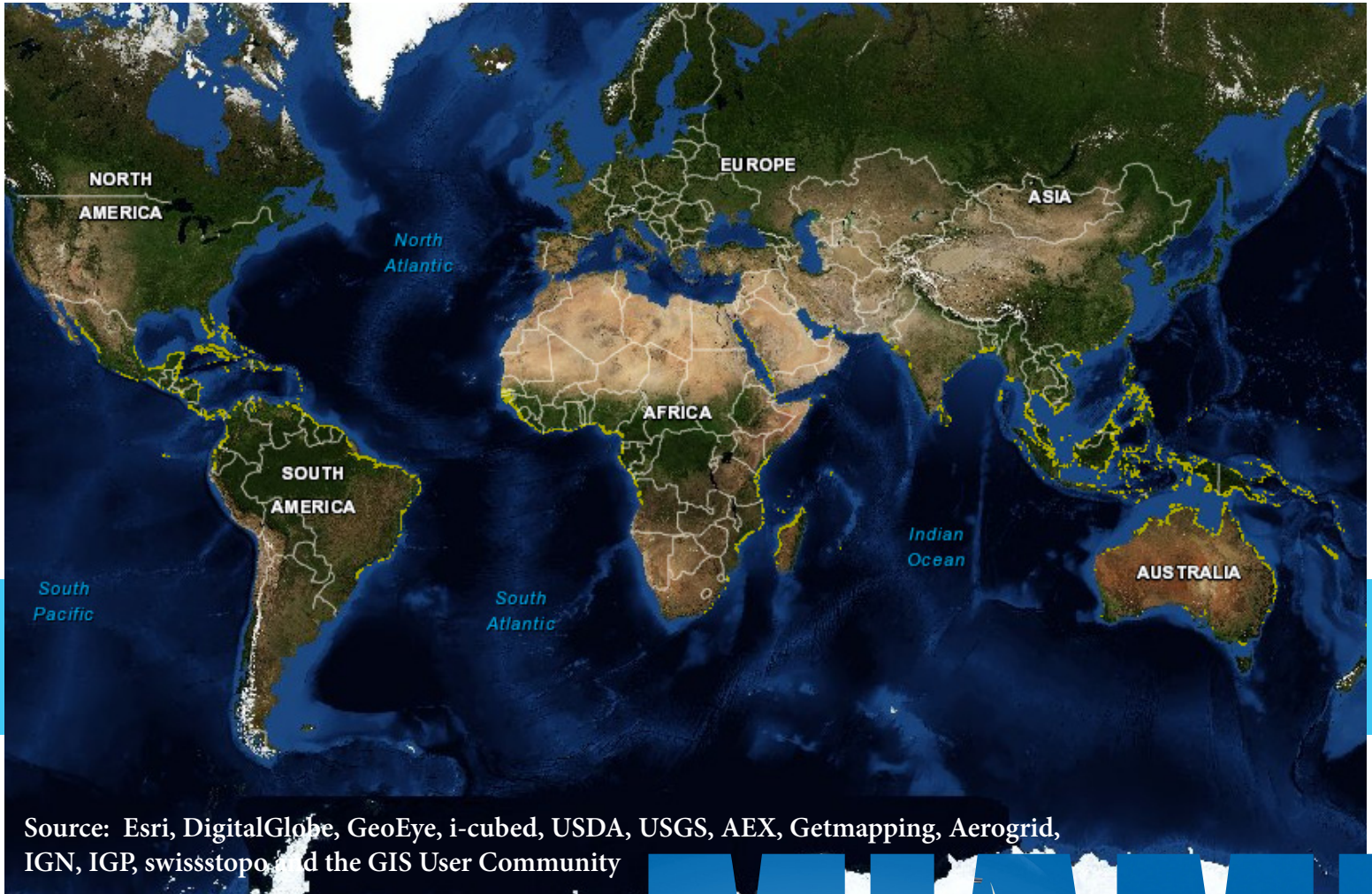
International Federation of Red Cross and Red Crescent Societies. (2012). *Philippine Red Cross and young people partner in community preparedness*. Retrieved May 8, 2013 from: <http://www.ifrc.org/en/news-and-media/news-stories/asia-pacific/philippines/philippine-red-cross-and-young-people-partner-in-community-preparedness-57573/>

Severino G. Salmo III (2007). *Mangrove rehabilitation in the Philippines*. Retrieved May 7, 2013 from: www.researchsea.com/...tml/article.php/aid/2142/cid/1





Worldwide distribution of mangroves.



Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

