

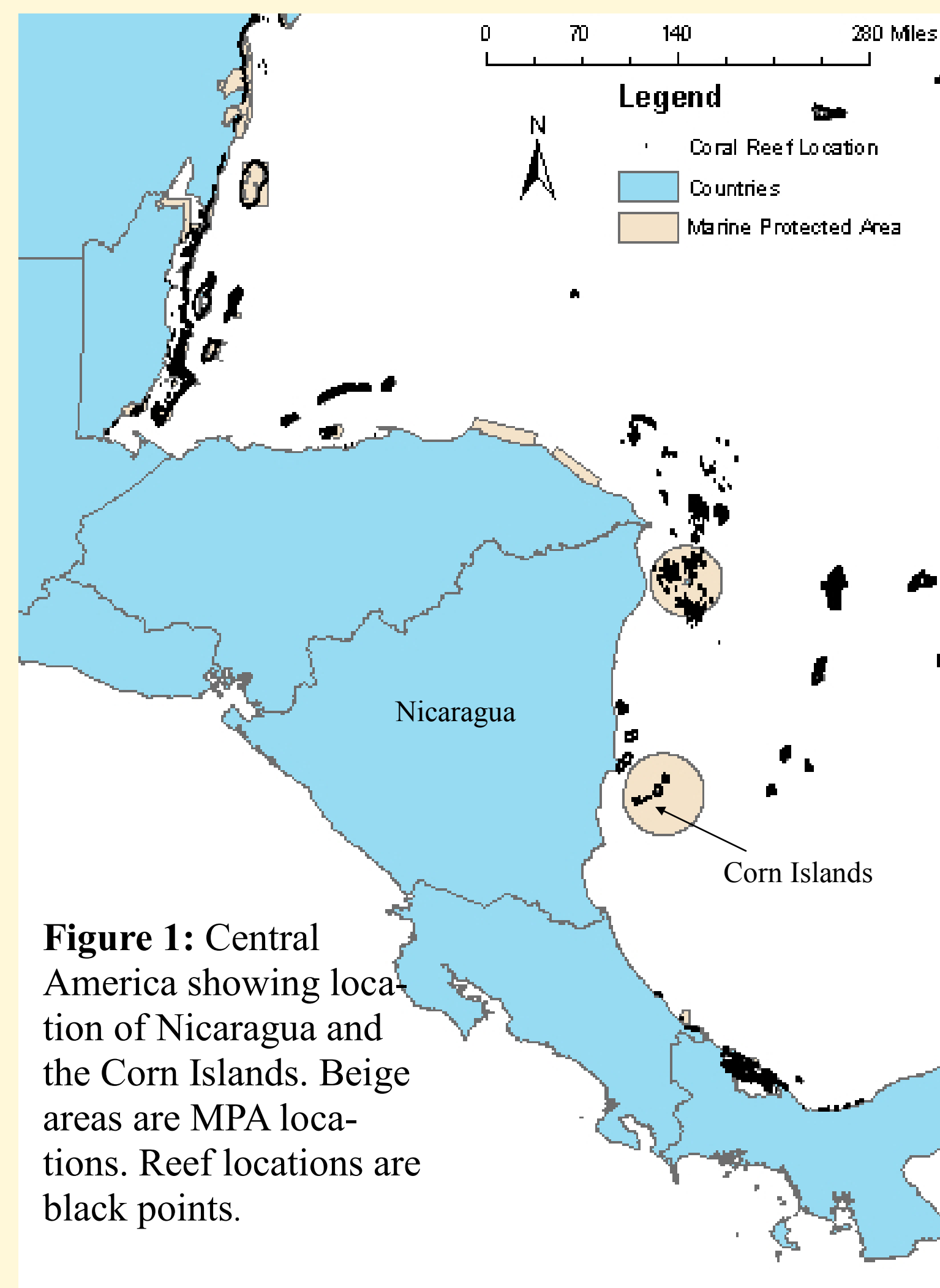
# Establishing a Marine Protected Area in the Corn Islands, Nicaragua



Cartographer: Sejal Soni  
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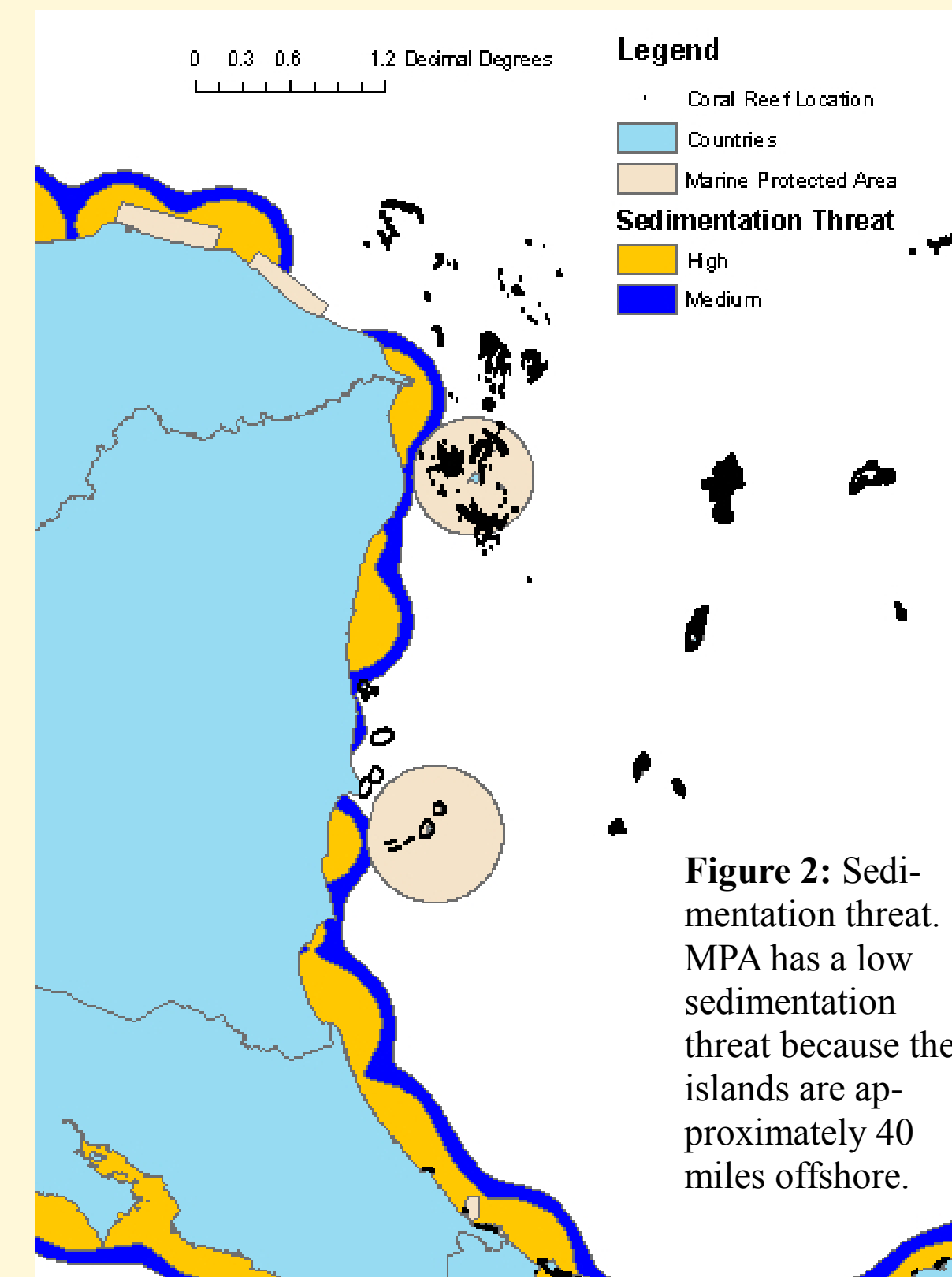
## Introduction:

Coral reefs all over the world are being threatened by the impacts of human beings. The establishment of marine protected areas (MPAs) across the globe help protect reef health by limiting pollutants



and other human impacts that can harm the reefs. MPAs are areas where coastal

industrial and recreational activities as well as fishing and on-water activities are



restricted. Successful establishment of MPAs is dependent on several factors including the current reef health, which is dependent on factors like sedimentation, coastal development, and local fishing practices. A marine protected area also needs to be monitored and the restrictions need to be enforced by local government. Finding an appropriate location to establish an MPA can be the most challenging part of the process. The Corn Islands off the coast of Nicaragua is an ideal location for a new marine protected area because the anthropogenic threats are low enough to be well controlled and other MPAs have been established. An MPA soon would help control the spread of coastal development and marine pollution. By analyzing the threats to the reef ecosystem surrounding the islands, a location for a new marine protected area can be found.

## Methods:

This project was executed by using data to create a map of the Caribbean showing with the following layers present:

1. National Boundaries
2. Coastlines: Shoreline based on mean high water
3. Coral Reef Locations: Map of reefs as points

4. Currently Established Marine Protected Areas: includes measure of management effectiveness

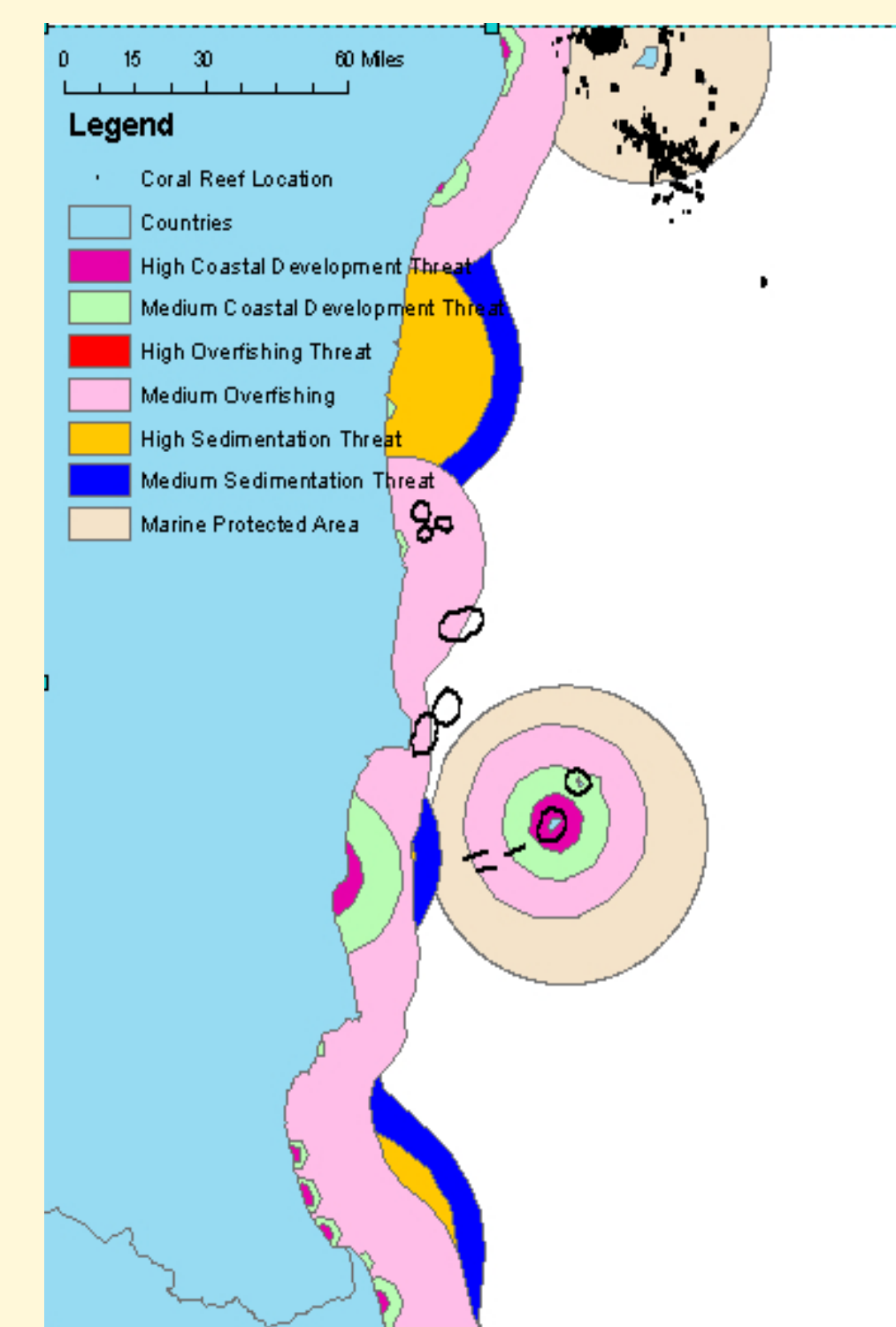
5. Coastal Development

Threat: Adjusted by coastal management effectiveness

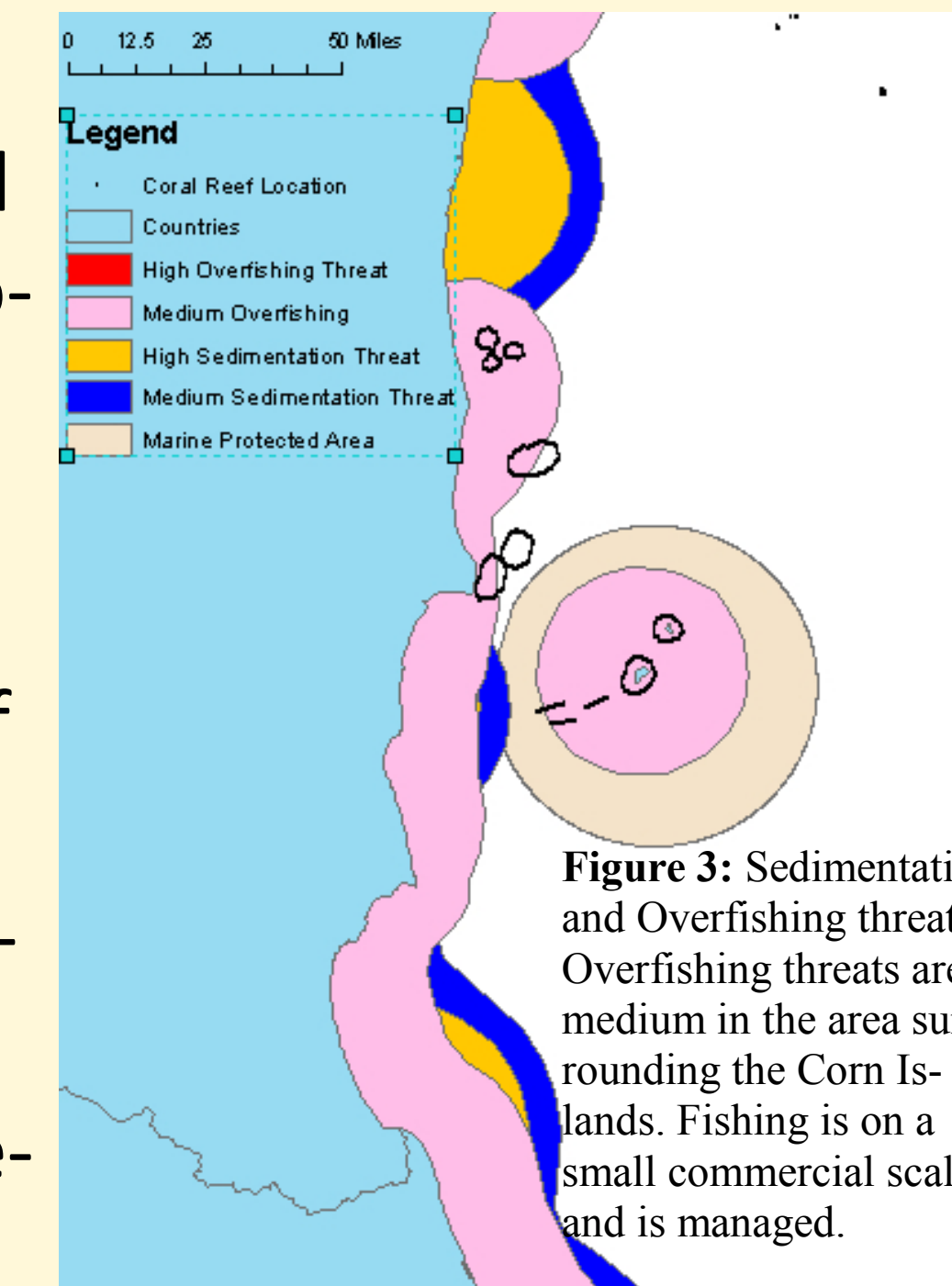
6. Sedimentation Threat: Threat from sediment and pollution from inland sources

7. Overfishing Threat: coastal fishing pressure adjusted by coastal management effectiveness

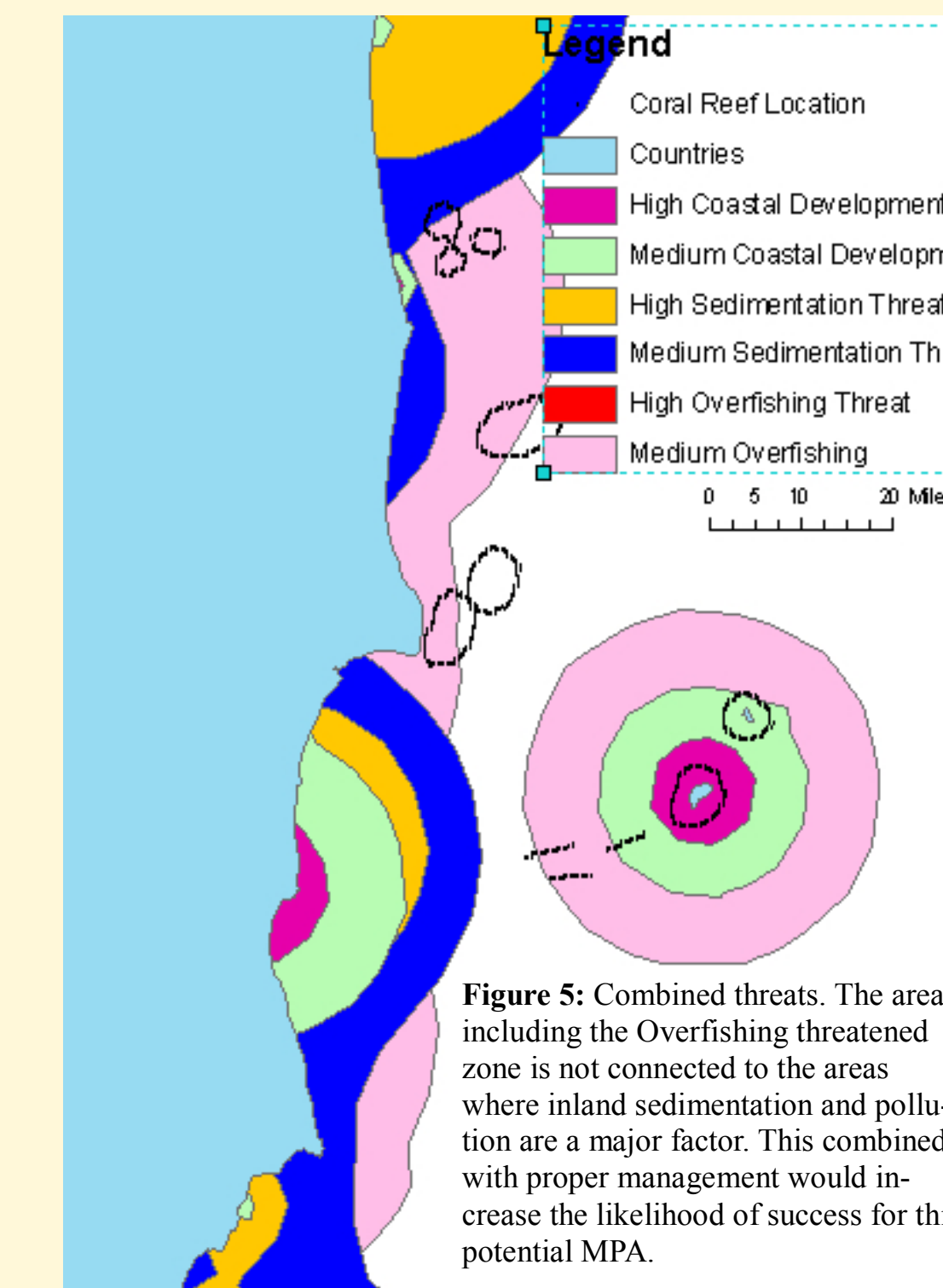
The area surrounding the Corn Islands is one where the coastal development threat is manageable, the sedimentation threat is minimal, and the overfishing threat is currently high but can be curbed with enforcement of regulation. The MPA around the Corn Islands should be large



enough to ensure proper protection of the reef area and migration of animals from the Islands to the shoreline and further out to sea. The distance from the coastline of the islands to the border of the MPA is approximately 50 miles. This protects a large area that can still be prop-



erly monitored.



larger of the two islands as the obvious location for the MPA.

## Results:

The result of this project is the location where a new marine protected area can be established surrounding the Corn Islands off the coast of Nicaragua. The threats to the health of the reef in this area are manageable but development on the island and tourism are increasing so protecting it now should be a priority.

## Conclusions:

This analysis would be more complete is data on the development of industries on the island were available so that the threats could be more localized and specific instead of being generally around the entire island. If data were to suggest that one part of the island was more developed and posed a greater pollution threat then that would be able to receive more monitoring and enforcing attention.

## Sources:

- World Resources Institute, [www.wri.org](http://www.wri.org), "Reefs at Risk in the Caribbean."
- The Corn Islands, [www.bigcornisland.com](http://www.bigcornisland.com)