Title
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DEVELOPING AND IMPLEMENTING THE BARBUDA BLUE HALO INITIATIVE: A PLAN FOR SUSTAINABLE OCEAN MANAGEMENT

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In collaboration with:
The Waitt Institute, Barbuda Blue Halo Initiative
Masters of Advanced Studies in Marine Biodiversity and Conservation
Capstone Final Report

June 2014
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MY CAPSTONE EXPERIENCE

Starting my year at Scripps Institution of Oceanography (SIO), I thought I wanted to explore new and foreign fields other than the conservation nonprofits that I was so heavily involved with and worked in prior to the Master of Advanced Studies (MAS) program. This was my year to explore and take advantage of every opportunity SIO had to offer. However, as with most ventures, the final product turned out to be far from my original idea. While I still believe I took advantage of the varied opportunities at SIO, I still found myself gravitating back to small organizations and community-based conservation programs.

I first learned of the Barbuda Blue Halo Initiative (Blue Halo) from my student mentor in the Scripps community. Anxious to learn more about what I had been told, I rushed to the Barbuda Blue Halo website to read more on the project, and ended up watching the short promo video over and over, excited about what it could become.

After emailing back and forth with Dr. Ayana Elizabeth Johnson, Executive Director of the Waitt Institute and lead of Barbuda Blue Halo, I had a capstone: Construction, Installation, and Maintenance of Marker Buoys and Vessel Moorings in Barbuda. The catch: I knew nothing about moorings (other than how to tie to one), but was so excited and eager to be on this project; it didn’t matter.

In early March I was fortunate enough to travel to Antigua and Barbuda with Dr. Johnson. I was blown away by the scope of the project, its mission, and how kind and receptive majorities
of the people in Barbuda were to the concept, not to mention the beauty of the island. Days were filled with meetings, planning, computer time, and presentations- not your typical Caribbean stay, but I was in my element and none of it mattered.

Returning from the trip, I joined the Waitt Institute team as an intern, expanding my work from only buoys and moorings to design, communication, outreach, and education work. The next few months flew by as I finished coursework at SIO and continued with Barbuda Blue Halo. Late May brought on a second trip to Antigua to meet with key players in the new regulations, a true learning experience of the project from a completely different angle.

As time went on and my involvement in the project increased, I decided that rather than write only a fraction of the Implementation Plan, I would to take on drafting a living document to become progressively more detailed as feedback from the Barbuda Council, their implementing staff, and the Waitt Institute as Barbuda Blue Halo continued. This change in capstone also came about as I accepted a full time position as Program Manager with the Waitt Institute to start immediately following SIO graduation.

The following Implementation Plan will be a basis for what I will continue to expand, develop, and implement in the weeks and months following graduation from the MAS program. This report won’t be “finished” when my signature page is complete or my presentation is over; it’s a continuation of the work I started with Barbuda Blue Halo during my MAS capstone, and a start to my first assignment as Program Manager.
ACKNOWLEDGEMENTS

My capstone experience would not have been possible without the help of the following: Dr. Ayana Elizabeth Johnson for welcoming me onto the Waitt Institute team and teaching me the essentialness and importance of carrying chocolate with you while traveling; Dr. Kathryn Mengerink for her leadership during the MAS summer program and assisting me in taking capstone panoramas; Dr. Stuart Sandin for brainstorming with me and helping me find direction throughout the year; Steve Bennett for teaching me how to “make it stick”; Jill Harris for introducing me to the Barbuda Blue Halo project and being my student mentor throughout the year; Dr. Phaedra Doukakis and Jane Weinzierl for the countless things they did for the MAS program; my family for pushing me to go above and beyond and supporting my cross-continental lifestyle; and the many MAS classmates and friends who became dog sitters multiple times this spring during all of my capstone traveling.
ABOUT THE IMPLEMENTATION PLAN

This draft document provides a plan for how to implement, monitor, and enforce Barbuda's draft coastal management regulations that were developed as part of the Waitt Institute’s Blue Halo Initiative.

The following draft Implementation Plan will be presented to the Barbuda Council upon passing of the (1) The Barbuda (Fisheries) Regulations (2) The Barbuda (Coastal Zoning and Management) Regulations, and (3) Barbuda National Parks Authority (Establishment) Regulations, and serve as a starting point for determining the details of how to proceed with project implementation.

The Waitt Institute performed an extensive project development phase for the Barbuda Blue Halo Initiative that included research, planning, and policy development. This document describes the policy development phase (Stages 1 and 2), proposed implementation (Stages 3 and 4), and long-term follow-up (Stages 5 and 6).

Stages 1 and 2 follow this process from the initial legal assessment and stakeholder interviews through the efforts put into community consultations and local capacity-building to the drafting of regulations and final approval processes. The resulting draft regulations are in final legal review at the Attorney General's Office.

Once regulations have been passed, the initial steps of implementation will focus on outreach from a local to international level, build-up of capacity needed for effective management and enforcement, creation of committees, and staffing (outlined in Stage 3).

The next stage of implementation is to improve enforcement. Scientific monitoring will also commence, as it is critical to tracking any changes in the marine environment resulting from implementation of new regulations. In addition, continued education to students and the community alike will to continue each of which is defined and further explained in Stage 4 of this document.

The Waitt Institute’s role in Barbuda will slowly be phased out starting in year four of the project as local institutions reach full capacity needed for implementation. During the phase out (Stage 5), ecological monitoring surveys will continue to be conducted by staff trained in proper techniques and methodologies, fisheries and zone infractions continue to be prosecuted by designated officers, and the long-term sustainable financing in place.

As the Waitt Institute mission of ensuring ecologically, economically, and culturally sustainable use of ocean resources for this and future generations through effective implementation for long-term success is met, the Waitt Institute will continue to reduce its role. However, the Waitt Institute will continue to assist with ecological assessment along with the analysis of data collected as described in Stage 6.

The Barbuda Blue Halo Initiative Implementation Plan will be a key tool for the Waitt Institute to support and evaluate the implementation process. Evaluation should also occur on organizational level within the Barbuda local government. It is expected that this will plan will be a living document, becoming increasingly detailed and robust as feedback from the Barbuda Council, their implementing staff, and the Waitt Institute’s technical experts is incorporated, and as lessons are learned about how to improve the effectiveness of implementation.
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1. **WAITT INSTITUTE**

1.1. **Vision Statement**
Empowering communities to restore their oceans.

1.2. **Mission Statement**
The Waitt Institute endeavors to ensure ecologically, economically, and culturally sustainable use of ocean resources, for this and future generations. The Institute collaborates with local governments and coastal communities to design comprehensive, data-driven ocean zoning and fisheries management strategies. Our approach engages stakeholders, benefits coastal livelihoods, and restores fish populations and habitats. The Institute provides technical expertise in marine ecology, mapping, policy, law, socioeconomics, and communications, and works with local organizations to build capacity for effective implementation and long-term success.

1.3. **Blue Halo Initiative**
A comprehensive, science-based, community-driven initiative that is led by collaboration between a government and the Waitt Institute, resulting in implementation of a Sustainable Ocean Policy for the project site.

1.4. **Sustainable Ocean Policy**
The Waitt Institute’s Sustainable Ocean Policy has three main components: (1) coastal zoning, (2) new fisheries regulations, and (3) an implementation plan for monitoring, enforcement, and financing. All three components are highly collaborative, and are a partnership between the Waitt Institute and our team of experts, local government, stakeholders, and non-governmental organizations (NGOs).

2. **BARBUDA BLUE HALO INITIATIVE**
The Barbuda Blue Halo Initiative empowers the people of Barbuda to restore their coastal waters by developing a sustainable coastal policy that is based on science, supports coastal and fishing livelihoods, deeply involves and encourages stakeholder participation, and includes the creation of sanctuary zones (closed to fishing) in order to replenish fish populations and restore a healthy ecosystem around the island of Barbuda. More detailed information and overview of the goals, policy, geographic scope, and project details are found below.

2.1. **Goal**
Sustainable, profitable, and enjoyable use of coastal resources for this and future generations.

*Figure 1. Geographic location of Antigua and Barbuda*
2.2. **Sustainable Coastal Policy**
The Barbuda Blue Halo Initiative goal can be achieved through the development and implementation of a Sustainable Coastal Policy that is:
- based on scientific, social, and economic data,
- supports fishing and coastal livelihoods,
- engages the community and all stakeholders in planning process, and
- includes sanctuary zones for fish population and habitat restoration and recovery.

2.3. **Geographic Scope**
Found in the middle of the northeastern Caribbean Leeward Islands, the twin island states of Antigua and Barbuda are part of the Lesser Antillies island chain. Barbuda, the smaller of the two islands, sits approximately 40 kilometers north of Antigua and has an area of 161 square kilometers.

The geographic scope of the Barbuda Blue Halo Initiative is limited to the waters that are under the jurisdiction of the governing body on the island, Barbuda Council (1 league, or 3.45 miles out from the coastline of the island).

![Figure 2 (right): Jurisdiction boundary of the Barbuda Council (Map courtesy of SeaSketch)](image)

2.4. **Reasons for Barbuda**
Barbuda was chosen as the pilot project for the Waitt Institute Blue Halo Initiative based of the following:
- **Political Will:** The Barbuda Council, Prime Minister, and members of Cabinet endorsed the project and pledged full support.
- **Support from Fishers:** Barbudan fishers have observed a decline in fisheries and are concerned. They want to see management improve and support the Blue Halo Initiative concept.
- **Local Capacity:** There are individuals at Codrington Lagoon Park and Barbuda Fisheries Division, among others, who have demonstrated commitment to implementation.
- **Economic Dependence:** Barbuda’s economy is heavily dependent on fishing. Making management more sustainable is critically important to livelihoods.
- **Cultural Importance:** Barbuda’s culture and social activities are intertwined with the ocean and fishing. Sustaining ocean resources is a high priority.

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1 US State Department: Central Intelligence Agency (2013). Antigua and Barbuda. The World Factbook
2.5. **Objectives and Potential Benefits**
Potential benefits and objectives of the Barbuda Blue Halo Initiative include the following:

- Accommodate a variety of coastal activities, while supporting ecological restoration.
- Improve fishing catches via increased populations of key fisheries species.
- Build Barbuda an international reputation as a leader in coastal management.
- Support tourism by establishing Barbuda as a premier eco-tourism destination.
- Address problems of illegal fishing by foreign nations.
- Cultivate young local resource managers and scientists.
- Protect the strong local traditions and culture that are intertwined with the ocean.
- Support sustainable fishing for this and future generations of Barbudans.

2.6. **Planning Principles**
The following planning principles were developed by the Waitt Institute and adopted by the Barbuda Council to guide the planning and policy development process.

- Plan with the goal of sustainable, profitable, and enjoyable use of coastal resources over the long-term – for next year and for future generations.
- Plan with a focus on increasing fisheries’ catches and preserving traditional uses of coastal areas.
- Plan with the premise that a zoning plan well supported by the community will result in higher voluntary compliance.
- Plan with consideration of maximizing ease of enforcement, including gear-based management and design of zone boundaries based on known landmarks, where possible.
- Plan with an understanding of the necessity for strong legal support for enforcement, including prosecuting and penalizing infractions.
- Plan with an aim of long-term financial independence and viability of implementation.
- Plan with the awareness that revisions and adjustments may be needed over time to maximize effectiveness.

2.7. **Blue Halo Site Toolkit**
The Waitt Institute provides a range of technical tools that governments may choose to apply when creating sustainable ocean policy and management. Some of them include:

- **Policy Facilitation**: Support for policy-making process including memoranda of understanding (MOU) between island government and the Waitt Institute.

- **Site Communications**: Strong communication to the local community through meetings, paper documents, site websites, social media, traditional media, blogs, and film.

- **Community Consultations**: Five or more community consultation meetings to provide information and opportunities for stakeholders to participate in the planning process.
- **Community Survey**: Conduct interviews (emphasis on fishers) to understand how people are using ocean resources, how they view ocean health, their concerns and priorities, and types of management they support.

- **Ecological Assessment**: Scientific assessment of marine resources.

- **Habitat Mapping**: Use high-resolution satellite imagery to create a map showing locations and habitat types in the coastal zone.

- **Zoning and Mapping Analysis**: A collaborative tool for marine spatial planning; SeaSketch.

- **Legal Assessment**: Preliminary assessment to scope legal feasibility, full evaluation of the existing legal framework, and support with development of new regulations.

- **Economic Assessment**: Provide a big picture analysis of the economics of fisheries and other ocean resources.

- **Scientific Monitoring**: Designed to assess the results of implementation and enforcement of new ocean management through long term monitoring, training of local staff, and providing tools to conduct survey.

- **Enforcement**: Build local capacity for enforcement including protocols, staff training in protocols and approaches, and tools needed for enforcement.

- **Local Capacity Building**: May include certifying locals in SCUBA, training in scientific monitoring, and additional training if needed.

- **Education**: Provisions to curricula and teaching materials, leading classroom seminars, planning and hosting summer camps for students, and mentoring future ocean leaders.

- **Financing**: Framework to ensure sustainable financing for implementing the Sustainable Ocean Policy model including creating a fund for monitoring and enforcement fees and fines, establishment of a “Friends of” 501(c) 3 to support implementation costs, and the creation of tourism in Barbuda.
3. METRICS AND EVALUATION

The Waitt Institute does not only provide the technical tools to create and implement sustainable policy and management, but also assists in evaluating and making any necessary changes. Overall success will be measured on many levels (e.g. environmental, legal, and socio-economic). Results will be communicated and adjustments will be made moving forward.

3.1. Measures of Success for Barbuda Blue Halo Initiative

Evaluating the impact and effect of the Barbuda Blue Halo Initiative include the following:

- **Sustainable Ocean Policy**: New fishery regulations in place and enforcement effective.
- **Area Zoned**: Ocean areas zoned including a representative habitat of each ecosystem found on the island, as well as a no-take sanctuaries in place.
- **Restoring Ecosystems**: Increase in biomass of fishery species and overall, improved benthic cover.
- **Staying Power**: Local management in place, high community support, management economically sustainable.
- **Cost Effective**: Adherence to approved Waitt Institute site budget.
- **Strengthened Coastal Economy**: Benefits fishers and the tourism sector.
STAGE ONE  Project Development:  

Research and Planning

1. **LEGAL ANALYSIS**

An assessment of the Antigua and Barbuda legal system in planning for the Barbuda Blue Halo Initiative consisted of three parts:

1. preliminary assessment to scope legal feasibility,
2. evaluation of the existing legal framework to determine authority for action, and
3. legal drafting and analysis support.

This work was completed in a coordinated and collaborative effort with the Barbuda Council, their legal advisors, and the law and policy team of Environmental Law Institute contracted by the Waitt Institute.

2. **HABITAT MAPPING**

A high-resolution satellite map was first used to identify types and locations of coastal habitats (sand, seagrass, patch reef, continuous reef, hard bottom, and deep water) around Barbuda. This habitat map was instrumental in creating zoning around the island.

3. **ECOLOGICAL ASSESSMENT**

The Waitt Institute formed a team of ten marine scientists and local Barbudans to conduct a comprehensive ecological assessment of the marine resources around Barbuda in April 2013. Over 230 sites were chosen to survey for lobster, conch, fish, corals, algae, and water quality samples (Figure 3).

Results from an ecological survey show that a number of species are overfished and nearshore ecosystems have declined. Population sizes of lobster, conch, fish, and corals seem to be much lower than formerly. Large fish are scarce, parrotfish are declining, and certain species are very rare or absent. The Codrington Lagoon, however, still remains a healthy nursery habitat.

Findings of the Ecological Assessment were presented to the Barbuda Council and used to structure regulations and zoning recommendations.

![Figure 3. Ecological Assessment survey sites and species focus in Barbuda, April 2013.](image)
4. **STAKEHOLDER SURVEYS**

The Waitt Institute staff conducted one-on-one interviews with fishermen, other stakeholders, and members of the community to better understand how the people of Barbuda use the island’s coastal resources, their views on the state of coastal resources, where fishing occurs, and what types of management they are willing to support. Emphasis was placed on interviewing the fishing community.

These surveys were used in developing policy and coastal zoning. In particular, information on key fishing locations was mapped to enable zoning decisions to consider how various zoning plans would affect fishers.

5. **OUTREACH AND CAPACITY BUILDING**

The Waitt Institute highly encouraged participation in the planning process. To ensure that the community was informed and had ample opportunity to contribute to policymaking process, a total of seven community consultation meetings took place on Barbuda, led by the Waitt Institute staff. Further, four consultation meetings were held specifically for the fishing community, and a Stakeholder Committee was formed to seek feedback from the full spectrum of stakeholder interests. These meetings and the Committee were designed to provide information and opportunities for the community to voice any opinions they had on the initiative and how they would like to see their waters managed.

In addition to community outreach, the Waitt Institute staff helped increase local capacity through training. In preparation for the Ecological Assessment in April 2013, ten local Barbudans were certified as PADI Open Water and Advanced SCUBA divers in order to further local knowledge, and assist in the Ecological Assessment.

Waitt Institute staff designed and hosted an Ocean Kids Camp in the summer of 2013. The camp took place over three days and focused on students learning the importance of coastal habitats and species living in these systems.
1. **LEGAL DRAFTING**

The Waitt Institute reviewed potential approaches to ocean management and made general policy recommendations to the Barbuda Council for their consideration. These included the following recommendations:

1. Establish a Coastal Management Committee
2. Require Barbuda Fishing License
3. Ban catch of key herbivores
4. Establish shark ban or permit system
5. Require use of escape gaps in fish pots
6. Prohibit fishing on spawning aggregations
7. Ban use of nets
8. Ban artificial reefs
9. Close lagoon permanently
10. Prohibit all mangrove damage
11. Ban Fish Aggregating Devices (FADs)
12. Establish fisheries and park funds

The above list of potential regulatory measures was presented to the community for their feedback, and the list evolved substantially as stakeholder ideas, concerns, and preferences were incorporated. Over the course of a year, the Barbuda Council decided which of these recommendations to pursue, and honed them to make them more locally-appropriate. The result was the list below:

1. Establish a Coastal Management Committee
2. Require Barbuda Fishing License
3. Prohibit catch of chub and sea needles
4. Allow shark fishing only for traditional use
5. Require use of escape gaps in fish pots
6. Prohibit fishing on spawning aggregations
7. Prohibit nets on the reef
8. Require permits for artificial reefs
9. Close lagoon for 2 years, but allow line fishing from shore
10. Require a permit for mangrove damage
11. Regulate FADs under national law
12. Establish Fisheries and Park Funds
13. Return empty conch shells to shore
14. Prohibit dinghies dragged across Low Bay

Simultaneously, the legal team of Environmental Law Institute conducted an extensive review of Antigua and Barbuda law. This included consultation with the Antigua and Barbuda Ministry of Legal Affairs to identify the legal approaches best suited for coastal zoning and fisheries management in the coastal waters around Barbuda. This information was all presented to the Barbuda Council who determined the legal approach and framework they wanted to use to create a new regulatory approach for managing the coastal waters.
The Waitt Institute and Environmental Law Institute provided legal drafting support and worked with the Barbuda Council and national government on many iterations legal language, resulting in four new sets of draft regulations:

- Barbuda (Fisheries) Regulations, 2014,
- Barbuda (Coastal Zoning and Management) Regulations, 2014,
- Barbuda National Parks (Establishment) Regulations, 2014, and
- Antigua and Barbuda National Parks Management Regulations

2. ZONING MAP DEVELOPMENT

Creating protected coastal zones that represent each habitat type derived from the habitat mapping project was a collaborative effort between the Barbuda Council, fishers, and other community members. The Waitt Institute facilitated discussion between the Barbuda Council and fishers and the community through the use of SeaSketch.

SeaSketch is a software service developed by the laboratory of Dr. Will McClintock at the University of California Santa Barbara Marine Science Institute. It is a web-based platform designed for spatial planning purposes. For the Barbuda Blue Halo Initiative, SeaSketch was used to sketch prospective management plans and help the people of Barbuda visualize map data and potential zoning solutions.

The Barbuda Council and the people of Barbuda negotiated three major drafts (and several alternative, interim drafts) of potential zoning maps, all created utilizing SeaSketch.

Figure 4. Map of Barbuda showing boundary of legal jurisdiction (black outline) with two draft regulation maps from August 2013 and October 2013.

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Figure 5. Proposed draft zoning in Barbuda
3. **PASSAGE OF REGULATIONS**

Since early 2013, the Barbuda Council has reviewed and revised drafts of the following regulations:
- The Barbuda (Fisheries) Regulations, 2014
- The Barbuda (Coastal Zoning and Management) Regulations, 2014, and
- The Barbuda Parks Authority (Establishment) Regulations, 2014.

Drafts of these documents are now in final legal review and expected to be signed into law in July 2014. In addition, the project is developing new national park regulations and an amendment to the Barbuda Local Government Act in order to support sustainable finance mechanisms. Following passage, the implementation planning process can begin.

4. **DEVELOPMENT OF SUSTAINABLE FINANCING PLAN**

In conjunction with the proposed new regulations, the Barbuda Council will develop and approve a sustainable financing plan that is modeled from projected income from sources (fees and fines primarily) to the expected costs of implementation and continued enforcement. The design of this approach will depend upon whether a new amendment to the Barbuda Local Government Act can be passed to enable the establishment of special funds. The Waitt Institute will support the development of this plan via economic modeling and make recommendations for potential financing approaches.
1. **BUILD LOCAL ENFORCEMENT CAPACITY**

1.1. **Fisher Registration and Special Area Permit**

The Fishers Registration database will be designed to track all intended fishing activity (number of fishers and nature of fishing operation) in Barbuda on a yearly basis.

Any fisherman wishing to fish within three nautical miles of Barbudan must register and receive a permit. To register, a fisher will complete and submit the Special Area Permit Application Form (Appendix A) to the Barbuda Senior Fisheries Officer. Upon approval, the fisherman will then be required to carry a permit with them when fishing or engaging in any fishing activity. The Barbuda Senior Fisheries Officer will collect Special Area Permit fees (Schedule A) at the time of approval. Any individual in violation of the regulations are subject to pay penalties to the Barbuda Council (Schedule B).

Any visitor to Barbuda must also submit a Special Area Permit Application Form and pay the registration fee.

Note: Individuals under the age of 16 do not need to register or apply for a Special Area Permit with the Council, but must still abide by the regulations.

Note: In the longer-term, the Barbuda Council may limit the number of Special Area Permits awarded per year, and place conditions on the types of fishing allowed with permits.

**Tasks and Responsibilities**

Specific tasks and responsibilities will be assigned to different parties involved. Each of these will be divided up into the following:

**Waitt Institute:**

- Decide whether or not to initiative Waitt Institute financial support of initial incentive program for local fisher registration (e.g. pre-paid fee for first 100 local fishers to register)
- Create system for registration data entry
- Draft template for Special Area Permit: local
- Draft template for Special Area Permit: visitor
- Ensure capability for printing durable permit cards

**Barbuda Senior Fisheries Officer:**

- Make the Special Area Permit Application Form easily accessible to community
- Establish a procedure for fee collection during registration process
- Maintain a record of all permits issued
1.2. **Violations to Special Area Permits**

1.2.1. **Notice of Violation**
Any fisher found in violation of the Barbuda (Fisheries) Regulations, 2014 will be notified by the Barbuda Senior Fisheries Officer or Barbuda Parks Ranger and given a Notice of Violation of the offence.

1.2.2. **Enforcement Log**
In conjunction with every Notice of Violation given, the Barbuda Senior Fisheries Officer will record each offence in an enforcement log.

**Tasks and Responsibilities**

*Waitt Institute:*  
- Draft template for Notice of Violation  
- Create an enforcement log system for data entry of all enforcement activity for the Barbuda Senior Fisheries Officer

*Barbuda Council:*  
- Follow up on payment of each Notice of Violation and handle unpaid fees

*Barbuda Senior Fisheries Officer:*  
- Assemble a record of enforcement actions (including contacts with vessels and fishers, violations, vessel, and violator, resolution of current status of each resulting enforcement action and submit to the Council.  
- Publish a summary of the enforcement log activity on a monthly basis in a newspaper with national circulation.  
- Post a summary of the enforcement log activity in a public area of each Fisheries Complex in Barbuda.

*Barbuda Parks Rangers:*  
- Report all Notice of Violations to the Barbuda Senior Fisheries Officer

1.3. **Coastal Zoning: Permit System**

1.3.1. **Marine Sanctuary: Diving Fee**
Any individual must register and pay a fee for diving rights in a Barbuda marine sanctuary (Schedule C).

**Tasks and Responsibilities**

*Waitt Institute:*  
- Create system for diver registration data entry  
- Write criteria for acceptance/denial  
- Create system and schedule of collection of fees  
- Design means to identify of authorized users (e.g. underwater tag, sticker, etc.)

*Barbuda Council:*  
- Create system of fee collection

*Barbuda Senior Fisheries Officer:*  
- Collect and deposit fees
1.3.2. **Research Permit**

Any individual interested in conducting research in Barbuda must complete the Research Application and submit to the Council and to the National Fisheries Division.

**Tasks and Responsibilities**

*Waitt Institute:*
- Draft Application form (components include purpose, intended plan, area involved, duration)
- Establish criteria for Council to accept or deny Research Application
- Draft acceptance/deny letter and permit

*Barbuda Council:*
- Present evidence of approval before granting any research permits

1.3.3. **Seagrass and/or Coastal Mangrove Habitat Disturbance**

Any individual must complete and submit the Application Form for Permit to Disturb Seagrass and/or Coastal Mangrove Habitat to the Council for intended disturbance to seagrass and mangrove habitat (Appendix C).

**Tasks and Responsibilities**

*Waitt Institute:*
- Establish criteria for Council to accept or deny Application
- Draft acceptance/denial letter
- Establish criteria for best practices to conduct assessment of damage to habitat (i.e. what are the impacts, what is the value of the resource damaged)

*Barbuda Council:*
- Create system of fee collection

1.3.4. **Artificial Reef**

Any individual must complete and submit the Application for Artificial Reef to the Council for the installation of any new artificial reef or an existing artificial reef (Appendix B).

**Tasks and Responsibilities**

*Waitt Institute:*
- Draft acceptance/deny letter for Application
- Establish criteria for acceptance/denial of Application
- Create system of data entry for artificial reefs

*Barbuda Council:*
- Create procedure for fee data entry/fee collection
- Research and contact permittees of existing artificial reefs and require an application to maintain the reef.
2. LOCAL COMMUNITY OUTREACH

The results of the Barbuda Blue Halo Initiative will continue to be communicated to the people of Barbuda through entirety of the Waitt Institute’s involvement. The goal is to ensure that all stakeholders are aware of the new regulations, are able to follow the status of implementation, and voice any potential concerns.

2.1. Fishing Stakeholders
    2.1.1. Barbuda Fishers
    The fishing community will be informed of new regulations through a range of materials. While many of the active fishers on Barbuda were actively engaged in the zoning process included in many of the consultations conducted, it is still important that confirm each fisher is informed of the new regulations. Approaches include the following:

    - Fisher forum (evening) for announcing passing of new regulations and what that means for local fishers (e.g. registration and Special Area Permit requirement, etc.).
    - Training workshops to update gear to include escape gaps.
    - Posted sign in Madison Square of new regulations and new zoning areas.
    - Series of one page fact sheets outline including basic information on key species to fisheries management (e.g. conch, lobster, parrotfish), why they are important, and size restrictions of each.

    **Tasks and Responsibilities**

    **Waitt Institute**
    - Organization of initial fisher forum
    - Organization and planning of training workshop
    - Design and create of regulation and zoning poster
    - Design and create of fact sheets

    **Barbuda Senior Fisheries Officer/Barbuda Parks Ranger:**
    - Posting of information provided by the Waitt Institute

    2.1.2. Antigua Fishers
    The Antiguan community will be notified of the new Barbuda Fisheries Regulations in the following ways:

    - Article in the local newspaper
    - Radio interview with Barbuda Senior Fisheries Officer
    - In-person interview with Waitt Institute staff member
    - Posted sign of Regulations and Zoning areas at Fisheries Complex and other appropriate areas

    **Tasks and Responsibilities**

    **Waitt Institute:**
    - In-person interview with television stations
    - Creation of regulation and zoning poster (same concept as poster above, modified to include Antigua for reference)
Barbuda Senior Fisheries Officer/Barbuda Parks Ranger:
- Radio Interview
- Confirmation that Barbuda regulations and zoning signs are posted in Antigua ports and Fisheries Complex

2.2. Non-fisher Stakeholders
2.2.1. Community
Public forums (held in the evening) will be held to inform the community of the new regulations and zoning areas and have any questions answered.

2.2.2. Hotel/Resort
Provided with printed material to share with guests and day visitors explaining the new regulations. Instructions for obtaining permits or other applications will also be provided.

Tasks and Responsibilities
Waitt Institute
- Coordinate with Barbuda Council to organize community evening forum for launch of new regulations
- Design and create material for hotels/resorts to share with guests

3. NEW GOVERNMENT ACTIONS
3.1. Barbuda Senior Fisheries Officer
Member of the Barbuda Council appointed by the Barbuda Council (see Barbuda (Fisheries) Regulations for details).

Tasks and Responsibilities
Barbuda Council
- Set guidelines and facilitate appointing process

3.2. Barbuda Fisheries Rangers
Appointed by the Barbuda Council (see Barbuda (Fisheries) Regulations for details).

Tasks and Responsibilities
Barbuda Council
- Set guidelines and appoint

3.3. Barbuda Coastal Management Advisory Committee (Committee)
Consisting of five members made by the following nominations:
   a. Barbuda Council:
      - Member of the Council; appointed by the Council
      - If Barbuda Parks Commissioner not in existence, then an individual appointed by the Council
   b. Barbuda Council and Chief Fishers Officer (joint):
      - Individual; appointed by the Council

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c. **Non-governmental Organization:**
   - Individual demonstrating commitment to ensuring the sustainable use of Barbuda coastal resources; appointed by the Council

d. **Community:**
   - Individual showing interest in fishing (and a registered Special Area Permit holder); appointed by the Council
   - Individual showing interest in tourism; appointed by the Council

e. **Defence Force:**
   - Member of Coast Guard; appointed by the Defence Force

**Tasks and Responsibilities**

**Barbuda Council**
- Place notice in the Fisheries Complex, Council office, and other locations to publicly advertise for Committee nominations

**Committee**
- Elect a Committee member to serve as Chairperson of the Committee
- Meet at least twice a year
- Advise the Council on coastal management, licences and permits, monitoring and enforcement, and potential amendments in Barbuda

**Barbuda Senior Fisheries Officer**
- Be present at each meeting of the Committee

3.4. **Barbuda National Parks Authority**
Consisting of six members made by the following nominations:

a. **Barbuda Council:**
   - Member of the Council; appointed by the Council
   - Chairperson of the Barbuda Planning Commission, or individual who meets qualifications of that position; appointed by the Council
   - Individual representing a NGO with an interest in conservation and management; appointed by the Council

b. **Government:**
   - Commission of National Parks, or his/her designee; appointed by the Government
   - Chief Environment Officer, or his/her designee; appointed by the Government
   - Individual representing a non-governmental entity with an interest in conservation and management; appointed by the Government

c. **Council and Minister:**
   - Chairperson: individual with experience, scientific expertise, or training; appointed by the Council and Minister

*Note:* Long Term: Initial Council nominations only one-year appointment; two-year positions thereafter. Other committee members are eligible for re-appointment after two years.

**Tasks and Responsibilities**

*See above parties*
4. **INTERNATIONAL AWARENESS**
   The following groups will have access to information on new regulations in the following formats:

4.1. **Foreign Vessels (Fishers and Other)**
   - Antigua and Barbuda Marine Directory (book)
   - Information sheets available at each fisheries locations (e.g. docks, marinas)
   - Antigua and Barbuda Marine Guide (online)
   - Official Website of the Government of Antigua and Barbuda (online)
   - Chris Doyle’s Guide (online)
   - Dock Walk and Yachting World (online)
   - Others TBD

4.2. **Antigua and Barbuda Tourism**
   - Barbuda Beautiful (magazine)
   - The Antiguan (magazine)
   - Antigua and Barbuda Business Focus (bi-monthly magazine)
   - Food and Drink, Antigua and Barbuda (magazine)
   - Zing (complimentary magazine from LIAT, Caribbean Airlines)
   - Antigua Observer (newspaper)
   - Cayman Compass (newspaper)
   - The Jamaica Observer (newspaper)
   - St. Kitts and Nevis Observer (newspaper)
   - Others TBD

4.3. **Diving Community**
   - Alert Diver (magazine/online)
   - SCUBA diver (magazine/online)
   - Dive Training (magazine/online)
   - ScubaBoard.com (online)
   - Others TBD

4.4. **Scientific Community**
   - Gulf and Caribbean Fisheries Institute (conference)
   - International Coral Reef Symposium (conference)
   - Coral-List (listserv)
   - GCFI (listserv)
   - DCMC (listserv)
   - CAMPAM (listserv)
   - Others TBD

**Tasks and Responsibilities**

**Waitt Institute**
- Posting/providing information on/to appropriate parties
- Follow up on posting/keep information up to date

**Barbuda Senior Fisheries Officer/Barbuda Parks Ranger**
- Communication and coordination with Barbudan and Antiguan Fisheries Office for posting information
- Communicate with community (local and international)
1. ECOLOGICAL MONITORING

Scientific Monitoring Program

1.1. Description
The Waitt Institute conducted a preliminary habitat assessment in Barbuda in April 2013 at 234 randomly distributed sites to determine species abundance, distribution, and size of fish, lobster, conch, coral, algae, and water quality. To measure success of the Initiative, changes (increase or decrease) in total populations and percent live cover will be monitored. To do so, a permanent scientific monitoring program will be established.

The Scientific Monitoring Program work plan will include selecting permanent monitoring sites at approximately 250 total locations each looking at abundance, distribution, and size of fish, lobster, conch, coral, benthos organisms and water quality for two years 150 total locations for fish assessment for two years, and additional site locations to monitor the Codrington Lagoon for two years.

1.2. Monitoring Program Methods
Surveys sites will be marked in the field (marking system TBD) and the surveys will be conducted on both snorkel and SCUBA. Divers will include both WI staff and local Barbuda staff. Training of local Barbuda staff (entry-level surveyors) in survey techniques will be accomplished through lectures, field exercises, and a monitoring exam (written and field). All entry-level surveyors must complete the training and the monitoring exam before conducting in-water surveys. In addition, a WI staff must accompany each entry-level surveyor for a minimum of 5 in-water surveys before an entry-level surveyor may conduct a survey independently.

1.3. Program Reports
Quarterly reports will be generated by analyzing data transmitted to the Waitt Institute by Barbuda staff and will be submitted to the WI Executive Director within thirty days of the close of the quarter. A year-end report will be submitted within thirty days of the close of each monitoring year. Reports will be combined for publication at the end of a three-year survey period.

Tasks and Responsibilities
Waitt Institute
- Develop curriculum, exams, training schedule and in-water activities
- Develop protocols for the efficient recording, transmittal and compilation of field data for Quarterly Reports.
- Compile Quarterly Reports and Year End Report
2. ENFORCEMENT ACTIONS

2.1. Zoning Identification: Marker Buoys
Marker buoys will be installed around marine sanctuaries, anchoring and mooring zones, and shipping areas to assist in the identification of these zones for residents and visitors.

Tasks and Responsibilities
Waitt Institute
• Research and written manual on construction, installation, maintenance, and replacement

Fisheries Division
• Construction and installation in conjunction with the Waitt Institute
• Long-term vessel moorings can be installed through collaboration with Port Authority on location installation, fee system, and maintenance

2.2. Zone Identification: Mooring Buoys
Mooring buoys may be installed designated Anchoring/Mooring zones in Barbuda with the collaboration with the Port Authority on Antigua.

Tasks and Responsibilities
Waitt Institute
• Coordinate with Port Authority on legal matters including an agreement for fees and zoning classification of buoys

Barbuda Council
• Coordinate with Port Authority on logistics of installation and financials

Barbuda Senior Fisheries Officer
• Coordinate with Port Authority on maintenance of buoys

2.3. Enforcement Plan
Each marine sanctuary offers a unique challenge in regards to accessibility, size, habitat, and enforceability. An enforcement approach including a ranking of highest to lowest risk, best means of enforcement needs to be developed with the assistance of an enforcement specialist.

Tasks and Responsibilities
Waitt Institute
• With enforcement expert, Barbuda Senior Fisheries Officer, and Barbuda Park Rangers, creates an effective enforcement strategy

Barbuda Council
• Work with enforcement team and local Barbuda staff to secure fines and fees

Barbuda Senior Fisheries Officer
• Develop and execute enforcement strategy
2.4. Barbuda Coastal Management Fund
A Barbuda Coastal Management Fund (Fund) will be created to collect all penalties, fees, and other funds generated through implementation and enforcement of coastal management regulations. The Barbuda Council will manage and administer the Fund and has strict guidelines for expenditure.

Tasks and Responsibilities
Barbuda Council
- Pass amendment establishing Barbuda Coastal Management Fund
- Prepare an annual budget for the Fund
- Maintain records of all receipts and expenditures of the Fund and create quarterly and annual statements
- Appoint independent auditors for an annual audit

2.5. Equipment (Fishing and Zoning)
2.5.1. Conch and Lobster Gage
Size restrictions listed in the National Fisheries Regulations, 2013 apply to lobster and conch caught on Barbuda. Each fisher will receive a gage upon registering for a Special Area Permit. Gages have the goal to make sure that size and weight restrictions comply with legal limits.

Figure 6. Conch and Lobster Gage

2.5.2. Fish Trap and Pot Escape Gap
Fishing is done through a variety of methods on Barbuda. In order to prevent the unintentional capture and death of juvenile and herbivorous fish, two or more escape gaps must be installed in traps and/or pots. Each escape gap will span the height of the trap or pot, be at least 1 inch (2.54 cm) wide at the narrowest point, and be positioned with the long length of the gap perpendicular to the seafloor.

Figure 7. Sample escape trap diagram to be included in the regulations
2.5.3. **Zoning Boat Card**
To assist in the transition and increase familiarity with new sanctuary zones, each registered fisher will receive a waterproof boat card with a map of Barbuda and the new zoning (sanctuary, no net, anchoring and mooring). The boat card will also list important regulation information including a summary list of new regulations and closed seasons.

2.6. **Zoning Sign**
To ensure that all community members (fishing and other) are of new regulations and new zoning areas, a large sign will be made and installed in a public space in Barbuda (e.g., Madison Square, the center of town) to make this information available.

**Tasks and Responsibilities**

* **Waitt Institute**
  - Coordinate with Barbuda Council on location and installation
  - Determine method of design/construction (i.e. painted on site, printed elsewhere and shipped in)

* **Barbuda Council**
  - Provide location and installation support

2.7. **Patrol Boat**
If inadequate vessels exist to carry out enforcement actions of the Fisheries Regulations, the Waitt Institute may financially assist in providing a patrol boat to the Fisheries Division for use by the Barbuda Senior Fisheries Officer or Rangers.

**Tasks and Responsibilities**

* **Waitt Institute**
  - Research and purchase boat
  - Coordinate with Barbuda Council for transport and location
  - Create maintenance plan for vessel

* **Barbuda Senior Fisheries Officer**
  - Maintain vessel with needed and scheduled maintenance
  - Keep log of repairs, fuel expenses, and daily use
3. **EDUCATION**

The younger generation of Barbuda is critical to the success of the Barbuda Blue Halo Initiative and the future ocean management program. Education delivery will come in two forms: a summer Kids Camp, and an Oceans Unit to be incorporated into the school program during the calendar year.

3.1. **Summer Kids Camp**

3.1.1. **Goal/Description**

A three-day summer program designed for students in Barbuda to learn and experience hands-on

(1) How amazing and fun the ocean is,
(2) the importance and benefits of coastal ecosystems on a local and global scale,
(3) new regulations, and
(4) how the new regulations will support Sustainable Ocean Management.

3.1.2. **Delivery**

Students will participate in in-classroom presentations, hands-on activities, educational games, field presentations, and on island field trips.

Each point listed above will be presented separately and jointly with a common theme throughout the camp to show connectedness.

The Waitt Institute will develop and plan curriculum, activities, and timing in advance. Possible collaborations with other organizations (e.g. marine education organizations or aquariums) may be used in developing material.

**Tasks and Responsibilities**

**Waitt Institute**

- Develop cohesive curriculum of ocean systems and importance along with new regulations
- Plan activities for students including transportation logistics
- Plan and order materials in advance
- Coordinate with Barbuda Council for best timing of camp

**Barbuda Council**

- Coordinate timing of activities
- Help with any transportation logistics
- Notify press about event

**Local School**

- Teacher coordination with Waitt Institute
- Participation in events including classroom, other areas for lessons
- Inform parents of events
3.2. **Ocean Unit**

3.2.1. **Goal/Description**
A three-day unit held during the school year (winter months) for students in Barbuda to

1. review the importance and how awesome the ocean is
2. review the benefits of conservation and ocean management (from Summer Kids Camp),
3. highlight success stories of marine protected areas around the Caribbean,
4. bring attention to current events/areas of concern in oceans, and/or
5. display/share data collected thus far on Barbuda from monitoring project.

3.2.2. **Delivery**
Students will participate in in-classroom presentations, hands-on activities, educational games, field presentations, and on island field trips. Ocean Units will be designed for two age groups: K-6 and 8-12. Ocean Units will take place once a year (winter months to off balance Summer Kids Camp) and will take concepts listed above and focus on age appropriate material.

The Waitt Institute will develop and plan curriculum, activities, and timing in advance. Possible collaborations with other organizations (e.g. marine education organizations or aquariums) may be used in developing material.

**Tasks and Responsibilities**

**Waitt Institute**
- Develop curriculum and activities
- Research and order ocean books to be used as class references in Barbuda
- Coordinate with Barbuda Schools for best timing of Ocean Unit

**Barbuda Council**
- Coordinate timing of activities
- Help with any transportation logistics
- Notify press about event

**Local School**
- Teacher coordination with Waitt Institute
- Participation in events including classroom, other areas for lessons
- Inform parents of events
3.3. **Community Events**

3.3.1. **Goal/Description**

Evening sessions designed to continue to inform the local community about

1. update/changes of regulations,
2. monitoring data current findings/status, and
3. importance and benefits of coastal habitats.

3.3.2. **Delivery**

Evening sessions (approximately 1-2 hours) held in a community space. First few will be led by the Waitt Institute staff phasing into the Barbuda Senior Fisheries Officer taking or designee taking over. The Waitt Institute's Science Team will provide summary of monitoring data.

**Tasks and Responsibilities**

*Waitt Institute*

- Gather information, and develop presentation
- Coordinate with Barbuda Council on timing of event

*Barbuda Council*

- Coordinate timing and space used for event
- Inform the community of the event

*Barbuda Senior Fisheries Officer and Barbuda Park Rangers*

- Assist in planning
- Inform the community of the event
- Attend event and help with delivery of current status of environment

3.4. **Lionfish Education**

3.4.1. **Background**

Lionfish are venomous, voracious predators that are believed to invade the Caribbean beginning in the 1980s. Lionfish eat high numbers of economically important native species, and there are no local predators to control their numbers.\(^3\)\(^4\) Controlling the lionfish population benefits fisheries and ecosystem and supports Sustainable Ocean Management.

3.4.2. **Goal/Description**

In efforts to control the population of invasive lionfish in Barbuda, the Waitt Institute will help to promote and educate the community on

1. what lionfish are, where are they found, and their behavior,
2. the current state of lionfish in the Caribbean,
3. why lionfish are a problem/threat to the Caribbean, and
4. how the people of Barbuda can help stop the lionfish invasion from expanding in Barbuda.

By doing so, the people of Barbuda will realize the imperative nature of keeping lionfish from settling in coastal habitats.

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\(^3\) REEF: Lionfish Research Program. http://www.reef.org/lionfish

3.4.3. **Delivery**

The Waitt Institute will work with the Barbuda Tourism (?) to develop education material on lionfish and organize a lionfish tournament for the island during the Caribana celebration.

**Tasks and Responsibilities**

*Waitt Institute:*
- Create lionfish “fact sheet” poster
- Coordinate with Barbuda to organize a lionfish tournament
- Financially sponsor tournament and promotional material (shirts, winner’s plaque, cash prizes, etc.)

*Barbuda Council:*
- Arrange island logistics
- Keep record of participants
- Award winners

*Barbuda Senior Fisheries Officer:*
- Keep record of fish data collected

![Figure 8. (right) Lionfish tournament materials designed and created for Barbuda lionfish tournament](image)

3.5. **Conservation Fact Sheets**

3.5.1. **Background**

The Waitt Institute often receives questions as to why conservation is necessary for not only Barbuda, but any island. These questions come form the local community and other outside parties. In addition to information listed on the Barbuda Blue Halo Initiative website, a series of one page fact sheets in the form of infographics will be created.

3.5.2. **Goal/Description**

Create a series of infographics to share with the public on why conservation and protection of coastal habitats and species is needed. Expand on the success of marine protected areas, marine sanctuaries, and sustainable fishing practices. Possible topics include:
- Spiny Lobster
- Queen Conch
- Fish (general)
- Fish (herbivores)
- Lionfish (invasive)
- Sharks
- Turtles
- Shrimp
- Mangrove
- Coral Reefs
- Seagrass
- Ocean Zoning
- Marine Protected Areas
- Hard Bottom Areas
- Water quality
3.5.3. Delivery
The Waitt Institute staff will research and write each fact sheet utilizing outside sources for information and design assistance if needed.

Tasks and Responsibilities

Waitt Institute
• Research, design, draft paper and electronic copies of fact sheet infographics for distribution

Barbuda Senior Fisheries Officer and Barbuda Park Rangers
• Become familiar with and distribute material
Developing and Implementing the Barbuda Blue Halo Initiative

1. CONTINUED ECOLOGICAL MONITORING

Continuing surveys of the habitats around Barbuda is critical to measuring the overall success of the new fisheries regulations and zoning areas. Data collected through this process will be instrumental in evaluating progress and determining a plan of action for the island in the future. Results from ecological monitoring can help build credibility to the Barbuda Blue Halo Initiative and further distinguish Barbuda as an island that prioritizes sustainable coastal management on a Caribbean and global scale.

The Waitt Institute will continue to assist in data analysis and any immediate needs of the Ecological Monitoring program.

2. CONTINUED ENFORCEMENT

Without enforcement, the Barbuda Blue Halo Initiative is at risk of failure. Zones formed under the regulations need to be enforced through the Fisheries Division, Barbuda Senior Fisheries Officer, and Barbuda Park Rangers.

The Waitt Institute will confirm that enforcement is carried out fully each quarter and assist if and when needed.

3. CONTINUED OUTREACH/AWARENESS

Communicating to the people of Barbuda and to an international audience will continue. Engaging the community and keeping information current is critical to the success of the project. The Waitt Institute wants to ensure that the project has a high level of community support. This will be done through continued community forums, periodic community surveys on overall response to the new regulations, up to date websites and social media avenues, and other metrics.

4. CONTINUED EDUCATION

Education programs will continue through the extent of the Waitt Institute’s involvement in Barbuda as well as expand in content and goals. As the people of Barbuda become more aware of ocean topics, the Waitt Institute will evaluate what areas to focus on. Direct education programs such as the Summer Kids Camp, Ocean Units, Community Forums as well as indirect education such as the Lionfish Tournament and Conservation Infographics will be continued, referenced, and continually expanded to best suit the people of Barbuda.
5. **LONG-TERM SUSTAINABLE FINANCING IN PLACE**

One of the long-term goals of the Waitt Institute and the Barbuda Blue Halo Initiative is that Barbuda is under effective local management and the management is economically sustainable. Because a majority of the Waitt Institute financial support will cease after year five, a sustainable financing plan must be in place in order to continue programs started (i.e. keep enforcement operations in place).

The Waitt Institute will examine the procedures that Barbuda Council introduces to the Barbuda Coastal Management Fund operations, and monitor progress closely in the immediate years after implementation to ensure that the financial plan is indeed sustainable and the island is on the right path to continuing the trend.
1. ECOLOGICAL MONITORING

1.1. Five-Year Ecological Survey
At the end of Year 5, the scientific assessment team will return to Barbuda (spring 2018) to conduct a Five-Year Ecological Survey up on the original sites surveys conducted in April 2013.

The goal of the Five-Year Ecological Survey is to document any positive or negative effects the Barbuda Blue Halo Initiative may have had on the coastal habitats and species surrounding Barbuda as a result of the new regulations, management, and enforcement programs. The same criteria (lobster, conch, fish, coral, benthic habitats, and water quality) will be evaluated.

Data from the Five-Year Ecological Survey will be analyzed and combined with the quarterly reports from previous years (conducted by the Waitt Institute and trained local staff). Results will be summarized and submitted for publication within six months of the completion of the survey.

A Ten-Year Ecological Survey will occur at the end of Year 10 following the same guidelines.

1.2. Evaluate Monitoring Efforts
In addition to a Five-Year Ecological Survey, existing monitoring efforts will be evaluated for effectiveness and efficiency. The Waitt Institute staff and the expertise of contracted scientists will write these criteria. Any changes in techniques or training methods will be reviewed, decided upon, and handled by the Waitt Institute.

The same process evaluation process will also happen at the end of Year 10.

2. EVALUATE AND REPORT PERFORMANCE OF IMPLEMENTATION

At the end of Year 5, and annually thereafter, the Waitt Institute will evaluate the effectiveness of the Sustainable Coastal Management program and the Implementation Plan. Results will dictate if the Waitt Institute will provide additional assistance to any component of the project (e.g. monitoring, enforcement, outreach).

If additional support is needed, steps will be taken to assess the current situation and identify opportunities for improvement. Based on these findings, the Waitt Institute will recommend revision to the Implementation Plan to ensure that Barbuda Blue Halo Initiative goals are met while keeping local and international concerns (if any) in mind.
APPENDIX A.
APPLICATION FORM FOR A BARBUDA SPECIAL AREA PERMIT

INSTRUCTIONS- If any items below are not applicable, write NA – leave no blanks. For “address” provide complete mailing address. Attach additional pages if needed.

DOCUMENTS TO BE SUBMITTED ALONG WITH APPLICATION (copy is acceptable):
Valid Identification Card for Local Fishers, if applicable
Fee (by check or money order)

ADDRESS TO – Barbuda Council, Council Hall, Codrington, Barbuda, Antigua and Barbuda

I hereby apply for a Barbuda special area permit:

1. Name: Local Fisher No:

2. Address:

   Country of Citizenship

3. Phone number:

4. Email address:

5. Name of vessel(s): Registration No:

6. Nature of fishing operation to be undertaken (X as appropriate)
   ___ Sport ___ Commercial
   ___ Trapping ___ Diving
   ___ Gillnetting ___ Handlining
   ___ Longlining ___ Spear fishing
   ___ Seining ___ Recreational
   ___ Any Other

Signature of Applicant: …………………………………… Date: …………………

Print name of Applicant:
…………………………………………………………………………

Note: Any permit issued on the basis of this application form is liable to cancellation if any of the information given in this application form is incorrect.
APPENDIX B.
APPLICATION FORM FOR PERMIT TO DISTURB SEAGRASS AND/OR COASTAL MANGROVE HABITAT

INSTRUCTIONS- For “address” provide complete mailing address.
If not applicable, write NA – leave no blanks.
Include required fee (by check or money order).

ADDRESS TO – Barbuda Council, Council Hall, Codrington, Barbuda, Antigua and Barbuda

I hereby apply for a permit to disturb seagrass habitat and/or coastal mangrove habitat for the described activity.

1. Name of applicant:
2. Organization (if applicable):
3. Address:
4. Country of citizenship:
5. Phone number:
6. Email address:
7. Project details. Please attach a description of the proposed project, including:
   a. objectives and purpose of proposed activity;
   b. a description of the proposed site, including adjacent land uses;
   c. specifics of the proposed actions that will disturb seagrasses and/or coastal mangroves
   d. evaluation of the public benefits associated with the proposed activity and the public detriments to the resource, including the value of ecosystem services provided by the seagrasses and/or mangroves;
   e. practicable steps taken to avoid and minimize environmental damage;
   f. documentation that the proposed action will not significantly alter the total seagrass and/or coastal mangrove resources of Barbuda;
   g. evidence of prior approval from the Barbuda Planning Commission, if available.
8. Area of mangroves and number of trees to be cut, felled, harvested, destroyed, or otherwise harmed:
9. Area of seagrass to be disturbed, destroyed, or otherwise harmed:
10. Expected commencement date of disturbance activity:
11. Expected completion date of disturbance activity:

Signature of Applicant: Date:
Print name of Applicant:
APPENDIX C.
APPLICATION FORM FOR AN ARTIFICIAL REEF PERMIT

INSTRUCTIONS - For “address” provide complete mailing address. If not applicable, write NA – leave no blanks. Include required fee (by check or money order)

ADDRESS TO – Barbuda Council, Council Hall, Codrington, Barbuda, Antigua and Barbuda

I hereby apply for a permit for the placement of an artificial reef in Barbuda for the described activity.

1. Name of applicant:
2. Organization:
3. Address:

4. Phone number:
5. Email address:

6. Project details. Please attach a description of the proposed project, including:
   a. objectives and purpose of work
   b. how reef will be installed and maintained
   c. documentation that reef will withstand hurricane-force surge
   d. practicable steps taken to avoid and minimize environmental damage

7. Site details. Please attach a description of the proposed site, including:
   a. coordinates of proposed reef
   b. explanation behind site selection
   c. documentation of current conditions at site

8. Device details. Please attach a description of the device to be used, including:
   a. materials to be used
   b. documentation of effectiveness of materials for promoting the growth of coral

9. Expected commencement date of reef construction:
10. Expected completion date of reef construction:

I understand that I am required to report any changes in the information contained in this form to the Barbuda Senior Fisheries Officer within 7 days of the change.

Signature of Applicant: Date:
Print name of Applicant:

Note: Any permit issued on the basis of this application form is liable to cancellation if any of the information given in this application form is incorrect.
APPENDIX D.
APPLICATION FORM FOR PERMIT TO DISTURB SEAGRASS AND/OR COASTAL MANGROVE HABITAT

INSTRUCTIONS- For “address” provide complete mailing address. If not applicable, write NA – leave no blanks. Include required fee (by check or money order).

ADDRESS TO – Barbuda Council, Council Hall, Codrington, Barbuda, Antigua and Barbuda

I hereby apply for a permit to disturb seagrass habitat and/or coastal mangrove habitat for the described activity.

1. Name of applicant: ................................................................................................................
2. Organization (if applicable): ................................................................................................
3. Address: ................................................................................................................................

4. Country of citizenship: ...........................................................................................................
5. Phone number: ........................................................................................................................
6. Email address: ........................................................................................................................

7. Project details. Please attach a description of the proposed project, including:
   a. objectives and purpose of proposed activity;
   b. a description of the proposed site, including adjacent land uses;
   c. specifics of the proposed actions that will disturb seagrasses and/or coastal mangroves
   d. evaluation of the public benefits associated with the proposed activity and the public detriments to the resource, including the value of ecosystem services provided by the seagrasses and/or mangroves;
   e. practicable steps taken to avoid and minimize environmental damage;
   f. documentation that the proposed action will not significantly alter the total seagrass and/or coastal mangrove resources of Barbuda;
   g. evidence of prior approval from the Barbuda Planning Commission, if available.

8. Area of mangroves and number of trees to be cut, felled, harvested, destroyed, or otherwise harmed: ........................................................................................

9. Area of seagrass to be disturbed, destroyed, or otherwise harmed: ...................

10. Expected commencement date of disturbance activity: ................................................

11. Expected completion date of disturbance activity: ...........................................................

Signature of Applicant: ..............................................................Date: ........................................
Print name of Applicant: ...............................................................

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## SCHEDULE A.
### PERMIT FEES – Fishing Regulations

<table>
<thead>
<tr>
<th>Type of permit</th>
<th>Cost</th>
<th>Duration of permit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fishing by person eligible for entry into the record as a local fisher</td>
<td>$100 per person</td>
<td>2 years</td>
</tr>
<tr>
<td>Fishing by person not eligible for entry into the record as a local fisher</td>
<td>$200 per person</td>
<td>The shorter of 1 week or duration of applicant’s legal stay</td>
</tr>
<tr>
<td>Artificial reef</td>
<td>$1000</td>
<td>Lifetime of reef</td>
</tr>
</tbody>
</table>
## SCHEDULE B.
### PENALTIES AND FINES: Fishing Regulations

<table>
<thead>
<tr>
<th>Offences</th>
<th>1(^{st}) offence</th>
<th>2(^{nd}) offence</th>
<th>3(^{rd}) offence</th>
<th>In contravention of:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fishing without a Permit</td>
<td>$200, 1 month permit suspension</td>
<td>$400, 3 month permit suspension</td>
<td>Taken to court</td>
<td>Sec. 7</td>
</tr>
<tr>
<td>Taking, placing for sale, purchasing or having in possession parrotfish or sea urchin</td>
<td>$50 per fish, 1 month permit suspension</td>
<td>$100 per fish, 1 month permit suspension</td>
<td>Taken to court</td>
<td>Sec. 9</td>
</tr>
<tr>
<td>Disposing of empty conch shells at sea or outside designated areas</td>
<td>$25 per shell, 2 week permit suspension</td>
<td>$100 per shell, 3 month permit suspension</td>
<td>Taken to court</td>
<td>Sec. 11</td>
</tr>
<tr>
<td>Taking or attempting to take a shark for non-traditional use or by person not ordinarily resident in Barbuda</td>
<td>$250 per shark, 2 month permit suspension</td>
<td>$500 per shark, 4 month permit suspension</td>
<td>Taken to court</td>
<td>Sec. 12</td>
</tr>
<tr>
<td>Exporting shark, shark fins, or other portions of shark</td>
<td>$500 per portion, 2 month permit suspension</td>
<td>$500 per portion, 4 month permit suspension</td>
<td>Taken to court</td>
<td>Sec. 12</td>
</tr>
<tr>
<td>Fishing or attempting to fish with traps or pots that do not include two or more escape gaps</td>
<td>$100 per trap or pot, catch forfeited, 6 week permit suspension</td>
<td>$200 per trap or pot, 4 month permit suspension</td>
<td>Taken to court</td>
<td>Sec. 13</td>
</tr>
<tr>
<td>Retaining, purchasing, or selling species during closed season established by the Council</td>
<td>$250, 6 week permit suspension</td>
<td>$500, 4 month permit suspension</td>
<td>Taken to court</td>
<td>Sec. 14</td>
</tr>
<tr>
<td>Fishing or attempting to fish on a spawning aggregation</td>
<td>$250, 6 week permit suspension</td>
<td>$500, 4 month permit suspension</td>
<td>Taken to court</td>
<td>Sec. 14</td>
</tr>
<tr>
<td>Placing an artificial reef without a permit</td>
<td>$100 plus $5 per day in water, 6 week permit suspension (if applicable)</td>
<td>$500 plus $5 per day in water, 4 month permit suspension (if applicable)</td>
<td>Taken to court</td>
<td>Sec. 15</td>
</tr>
<tr>
<td>Harming, taking, possessing, purchasing, or selling undersized, egg-bearing, or other unlawfully retained lobster</td>
<td>Charged/compounded under Fisheries Regulations 2013</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### SCHEDULE C.
MANAGEMENT FEES – Zoning Regulations

<table>
<thead>
<tr>
<th>Type of activity</th>
<th>Cost</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diving in a marine sanctuary in Barbuda</td>
<td>$25 per person</td>
<td>1 week</td>
</tr>
</tbody>
</table>


## SCHEDULE D.
**PENALTIES AND FINES – Zoning Regulations**

<table>
<thead>
<tr>
<th>Offence</th>
<th>1st offence</th>
<th>2nd offence</th>
<th>3rd offence</th>
<th>In contravention of:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fishing or attempting to fish in marine sanctuary</td>
<td>$250, 6 week Barbuda Special Area Permit suspension</td>
<td>$500, 3 month Barbuda Special Area Permit suspension</td>
<td>Vessel detained and taken to court</td>
<td>Sec. 10</td>
</tr>
<tr>
<td>Fish with or use net in a no-net zone</td>
<td>$250, 6 week Barbuda Special Area Permit suspension, equipment seized</td>
<td>$500, 3 month Barbuda Special Area Permit suspension, equipment seized</td>
<td>Taken to court</td>
<td>Sec. 10</td>
</tr>
<tr>
<td>Anchoring or mooring outside of designated areas</td>
<td>$100 plus $5 per day</td>
<td>$250 plus $10 per day</td>
<td>Taken to court</td>
<td>Sec. 10</td>
</tr>
<tr>
<td>Dragging a vessel across a sandbar, seagrass bed, or other substrate</td>
<td>$250</td>
<td>$500</td>
<td>Taken to court</td>
<td>Sec. 10</td>
</tr>
<tr>
<td>Engaging in activity without paying required management fee</td>
<td>$250</td>
<td>$500</td>
<td>Taken to court</td>
<td>Sec. 10</td>
</tr>
<tr>
<td>Engaging in research without written permission from the Council or in violation of conditions to such permission</td>
<td>$250</td>
<td>$500</td>
<td>Taken to court</td>
<td>Sec. 10</td>
</tr>
<tr>
<td>Fishing or attempting to fish in Codrington Lagoon other than catch and release, in flashes, or from shore with hook-and-line</td>
<td>$250, 6 week Barbuda Special Area Permit suspension</td>
<td>$500, 3 month Barbuda Special Area Permit suspension</td>
<td>Vessel detained and taken to court</td>
<td>Sec. 11</td>
</tr>
<tr>
<td>Causing harm to seagrass and/or coastal mangroves without or in violation of a permit</td>
<td>$250 per 1 meter square of seagrass and/or per mangrove tree harmed</td>
<td>$500 per 1 meter square of seagrass and/or per mangrove tree harmed</td>
<td>Taken to court</td>
<td>Sec. 12</td>
</tr>
</tbody>
</table>