

JUNIOR CORAL REEF AMBASSADOR

TRAINING MANUAL



**FOLKESTONE MARINE RESERVE
NOVEMBER 2008**



THE FOLKESTONE MARINE RESERVE

The Folkestone Marine Reserve is located on the west coast of Barbados and occupies one of the most heavily used marine spaces on the island. It is currently the only legislated marine protected area in Barbados, occupying 2.2 km². The area extends from the high water mark and extends about 950 meters offshore at its widest point. It stretches from the Coral Reef Club in the north to the south end of the Sandy Lane Hotel property in the south. The area is comprised of patch, fringing and bank reefs on a mostly sand bottom. The flora and fauna in the area are quite diverse. There are endangered hawksbill marine turtles (*Eretmochelys imbricata*) that nest on the beaches and the green turtles (*Chelonia mydas*) can be seen foraging in the nearshore waters. The Holetown Lagoon area has remnants of a mangrove stand, with the white mangrove (*Laguncularia vacemosa*) as the most common.

ESTABLISHMENT OF THE RESERVE

The reserve was established in 1981 for the promotion of scientific use and also to provide recreation for locals and visitors alike. It has been regulated by the Marine Areas (Preservation & Enhancement) Act CAP 232A. The reserve is divided into four (4) zones which have been designated for specific uses and thus have specific rules. The marine reserve is currently being managed by the National Conservation Commission (NCC). The NCC is a government organization, and one of its objectives is to develop a network of protected areas, both marine and terrestrial.

FOLKESTONE AREA HISTORY

Did you know that in 1625, English explorers landed in Holetown, which was then known as Jamestown after King James 1 of England. The name was later changed to Holetown because the shallow-draught ships could enter the river at this point, reminding the sailors of the Hole in the River Thames.

Teachers and students along with the CERMES, CCA and the NCC (Folkestone Marine Reserve) have worked together to design this training manual. We would like to recognize the following persons for making this manual a reality.

Katherine Blackman, *Research Assistant*, CERMES

Maria Pena, *Project Officer*, CERMES

Susan Mahon, *Facilitator*, Future Centre Trust

Andree Griffith, *Executive Director*, Caribbean Conservation Association

John Nicholls, *Park Manager*, Folkestone Park and Marine Reserve

Patrick Williams, *Park Naturalist*, Folkestone Park and Marine Reserve

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James Moore, *Student*, St. James Secondary

Renata Goodridge, *Senior Marine and Lab Technician*, CERMES



WHO IS A PARK NATURALIST?

A park naturalist is someone who is employed by the National Conservation Commission to take care of the marine reserve.

WHO IS A JUNIOR CORAL REEF AMBASSADOR?

A Junior Coral Reef Ambassador is a caretaker of the reef environment. The Ambassador learns as much as he/she can about the natural resources so that he/she can teach others. Ambassadors look after their schools and communities and make sure that they are kept clean.

Ambassadors learn about environmental laws so they can help park naturalists enforce them and so they can inform others. Ambassadors share their knowledge of the environment to promote conservational practices.

One thing that the Junior Coral Reef Ambassadors need to do is complete all of the activities specified for their programme in this manual. That is the first step to becoming an Ambassador.

This manual is about what the Junior Coral Reef Ambassadors need to know and about what they need to do.



THE PROGRAMME

The Junior Coral Reef Ambassador Programme has two streams: the basic stream is targeted to the primary schools and the advanced stream is targeted to the secondary schools. The full programme consists of four workshops:

Workshops

1. History of the watershed

Field trip to a gully (Welchman Hall Gully and Harrison's Cave)

2. Wetlands Workshop

Field trip to Graeme Hall Nature Sanctuary, Holetown Hole or Chancery Lane

3. Coral Reef, Seagrass and Mangroves Workshop

Field trip to the Folkestone Marine Reserve (glass bottom boat ride, snorkeling) and sea turtle night watch

4. Marine Pollution and Waste management

Field trip to the sewage treatment plants on the island (Bridgetown Emmerton Plant and/or the South Coast Sewerage Project Plant).

These workshops will be planned by the Reserve and the CERMES, University of the West Indies and held at the Folkestone Marine Reserve Office on any specified Saturday of the year.

Students must complete all the activities in the Junior Coral Reef Ambassador Manual unless specified. The manual must be monitored, approved and signed by a certified Junior Coral Reef Ambassador Trainer in order to be accepted as a completed manual. Students shall carry an attendance card that must be signed by the trainer as proof of attendance at the workshops during every phase of the programme. All students must participate on projects for International Earth Day and World Environment Day.

All students will receive a Folkestone Marine Reserve Junior Coral Reef Ambassador button to wear during training and field trips. They will also receive a badge upon completion of the programme and/or a Junior Coral Reef Ambassador Certificate.

Basic Junior Coral Reef Ambassador Programme

Students must attend one of the training workshops mentioned above during the course of the year and write a report on one of the following field trip experiences.

Advanced Junior Coral Reef Ambassador Programme

Students must complete all field trips not yet completed under the Basic Programme. After completing the workshops, students must assist a Trainer with at least one of the workshops or field trips in the Basic Junior Coral Reef Ambassador Programme. Students must complete swimming and snorkeling classes.

JUNIOR CORAL REEF AMBASSADOR SPECIALTY PROGRAMME

Students will receive Specialty badges and/or certificates upon completion of each programme.

Basic Programme



Administrative Management

Courses include five minimum days office experience at the Folkestone Marine Reserve learning filing, faxing, photocopying, and phone answering skills. Students will have at least one lesson in computer skills. Students will spend three days visiting schools and distributing educational materials to both the schools and the public regarding the reserve and its surrounding marine environment.



Environmental Monitoring I

Course includes one day in a laboratory learning about the types of equipment used for monitoring water quality. Students must write a report.

Advanced Programme



Environmental Monitoring II

Course includes two days university laboratory experience including: assisting in preparation of marine samples for analysis, recording data and analyzing data; two days water sampling field experience. Students must write a project report.



Junior Ranger Lifesaving (RLSS)

Students must be avid swimmers and undergo strict training for a minimum of five days. Upon completion of the course, students must demonstrate practical and theoretical first aid and CPR skills and be well versed in lifesaving procedures. Students must spend one-two days with a lifeguard on one of Barbados' beaches.



Marine Park Management

The course includes a minimum of five days of patrol with Marine Park Rangers, review of Marine Park regulations and relevant environmental laws. Students will interview resource users e.g. beach users and dive operators, take a one day tour of the Folkestone Marine Reserve, and write a report. Students must prepare material to distribute to the public informing them about the importance of Folkestone Marine Reserve.



Eco-tour guide

Course includes tourism training by Ministry of Tourism. Upon completion, students must be capable of knowledgeably guiding a tour of primary school students through the museum at the marine park, as well as on a glass bottom boat, and around the Holetown hole.

AMBASSADORS need to know

...about their environment, how it works and what parts of it are especially important.

...about environmental specially protected areas and other special areas around the island.

AMBASSADOR REQUIREMENT:

Write the names of these special areas in Barbados on the map on the next page.

- Folkestone Marine Reserve
- Long Pond
- Turner's Hall Woods
- Graeme Hall Swamp
- Chancery Lane Swamp
- Hometown Hole
- Carlisle Bay Marine Park
- Harrison's Cave
- St. Lawrence Lagoon
- Joe's River Forest
- Coles Cave
- Drill Hall Beach
- Walkers Savannah

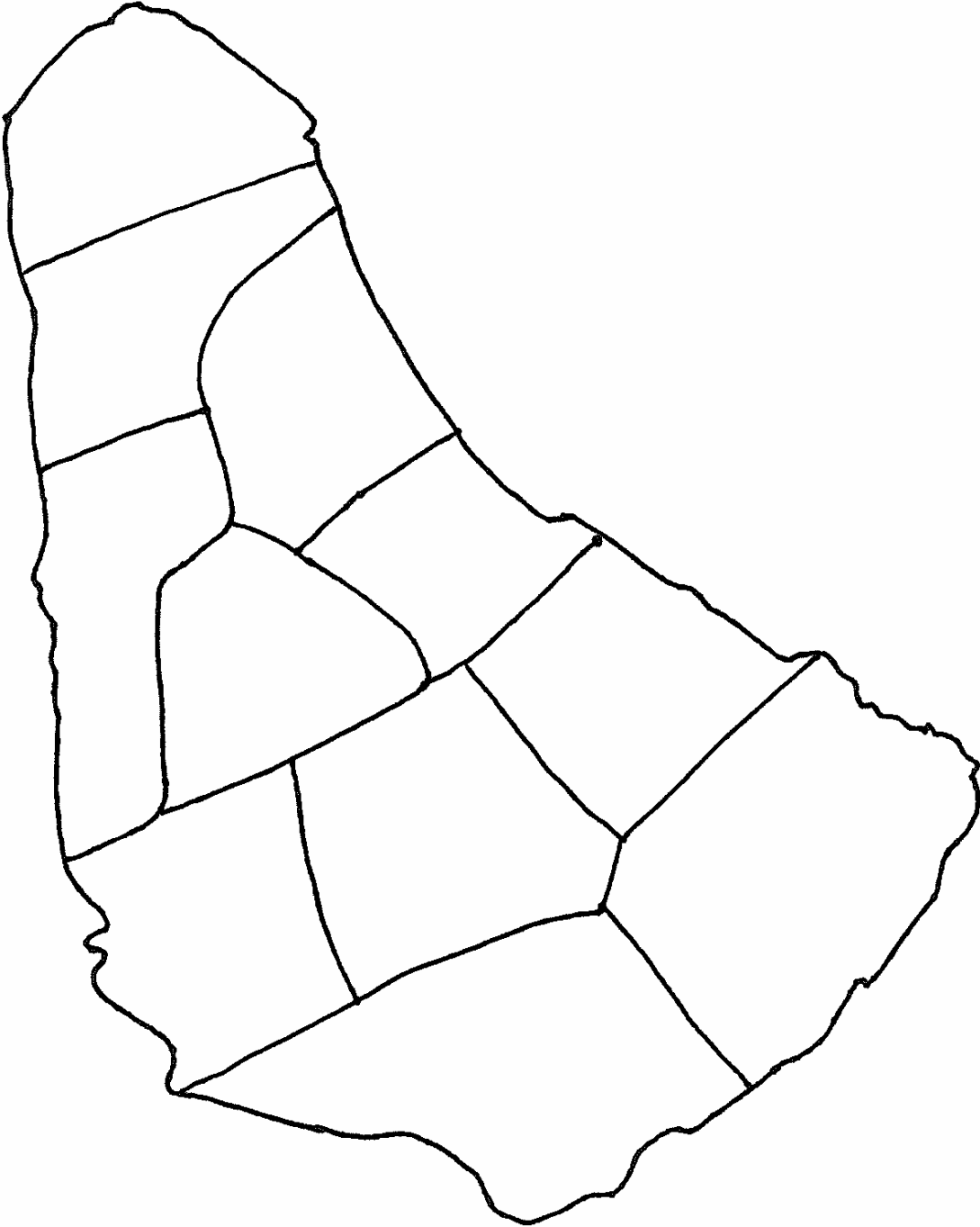
AMBASSADORS NEED TO KNOW THE LAWS SUCH AS,

NATIONAL CONSERVATION COMMISSION ACT (1985)

This Act is used to protect the public parks, gardens, beaches and caves of Barbados. Sites and buildings of national importance are conserved. Persons can be fined if they remove any plants, animals or calcite formations from caves, pollute the watershed in a cave or deposit waste in a cave. Anyone caught doing so will be fined \$500.00.

MAP OF BARBADOS

Special Areas in Barbados



AMBASSADORS need to know

....about the zones in the marine reserve and their uses. Ambassadors must know the types of reefs and given names located within the boundaries of the Reserve.

....about the reason for developing marine reserves and their importance to our island.

...about the laws that protect coral reefs, beaches and marine waters on the island.

AMBASSADOR REQUIREMENTS:

The Folkestone Marine Reserve is divided into four zones. Use the map on the following page to indicate the location of each zone in the marine reserve.

Do you know the rules for each zone? State the differences between the zones.

Name and locate at least 3 reefs within the Reserve. Indicate if the reefs are a fringing reef, bank reef or patch reef.

(1) _____

(2) _____

(3) _____

AMBASSADORS NEED TO KNOW THE LAWS SUCH AS,

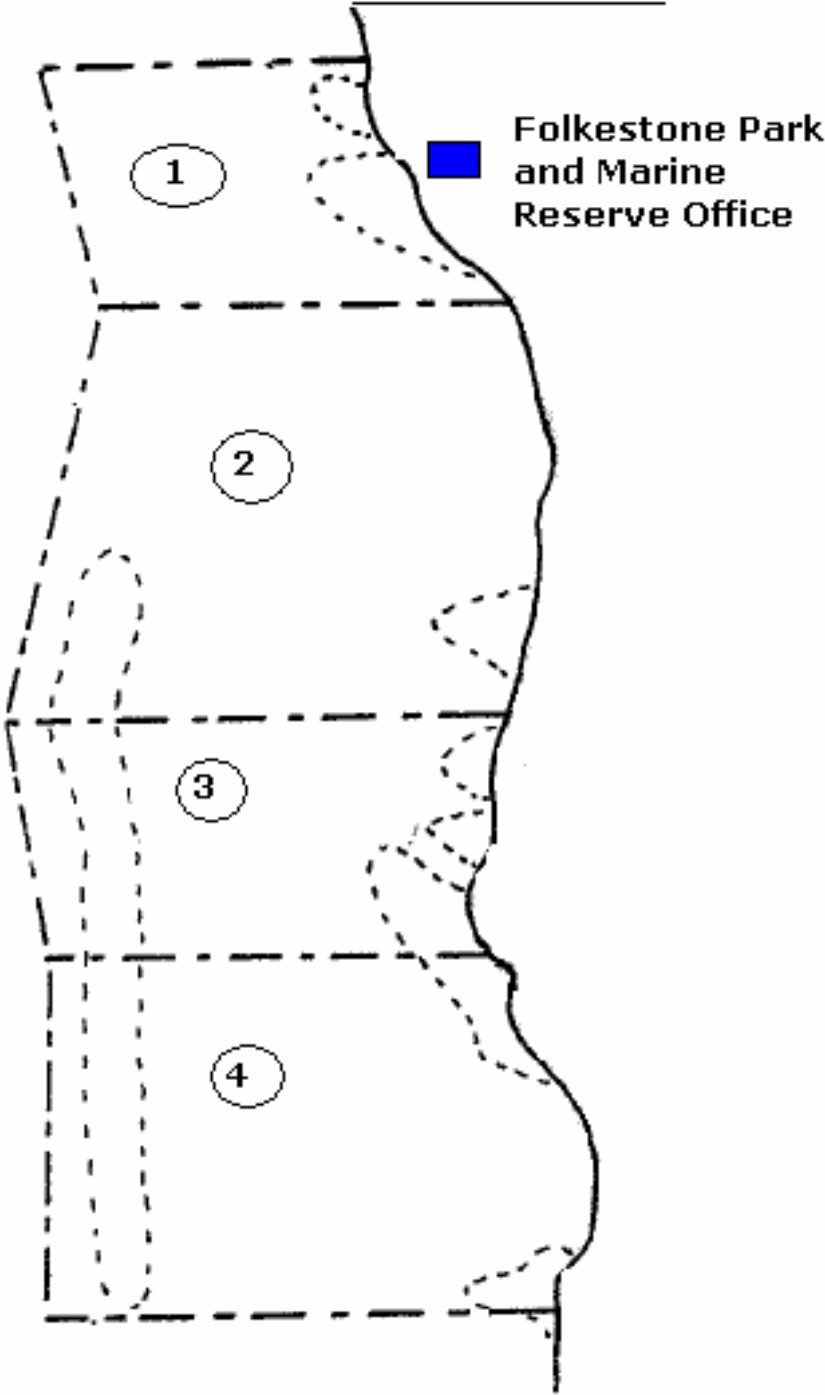
COASTAL ZONE MANAGEMENT ACT (1998)

This Act protects coral reefs and beaches areas all around the island. People should not harvest or engage in the trade of any coral. Anyone caught breaking a piece of coral will be fined \$5000 or sent to prison for 2 years. People should not use any explosives or harmful substances to catch fish or harvest coral. Anyone caught doing so will be charged \$300 for every square metre of coral damaged and/or sent to prison for 5 years. It is also illegal for persons to remove sand or vegetation from the beach and to dispose of garbage or waste on a beach or the foreshore.

MARINE POLLUTION CONTROL ACT (1998)

This Act protects marine waters on all the coasts of Barbados. People should not release or cause pollutants to be released into the environment. Anyone caught doing so for the first time will be fined \$200,000 or sent to prison for 5 years or both. Less serious offences will result in a fine of \$100,000 or the person will be sentenced to 2 years in prison.

MAP OF FOLKESTONE MARINE RESERVE



AMBASSADORS need to know

....about animals and plants around the island that are rare or endangered.
....about the laws that protect our plants and animals.

AMBASSADOR REQUIREMENTS:

1. Find a fun fact about each of the plants and animals below.

2. Find out about other plants or animals that are on the verge of being endangered in Barbados.

AMBASSADORS NEED TO KNOW THE LAWS SUCH AS,

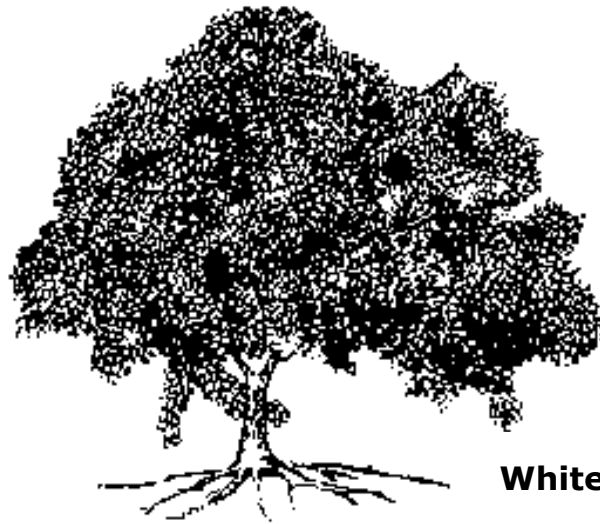
WILD BIRDS PROTECTION ACT (1907)

This act provides protection for about 46 species of wild birds. Anyone who kills or injures any of these birds will be fined \$100.00. Any person caught with the dead body or part of the dead body of the bird will be charged \$100.00 for each dead body part. Any person caught exporting skin or features of any wild bird will be charged \$250.00

TREES [PRESERVATION] ACT (1981)

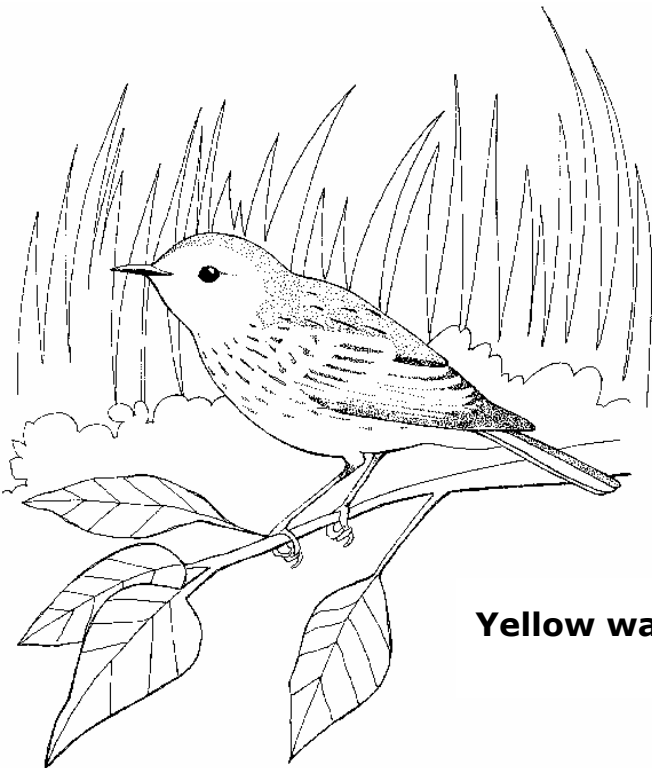
This act protects trees. People should not kill a tree without permission, nor should they uproot, remove or damage any planted tree. Anyone who is caught will be charged \$1000.00 or persons will be sentenced to 6 months in prison.

SOME OF BARBADOS' PROTECTED, RARE AND ENDANGERED PLANTS AND ANIMALS



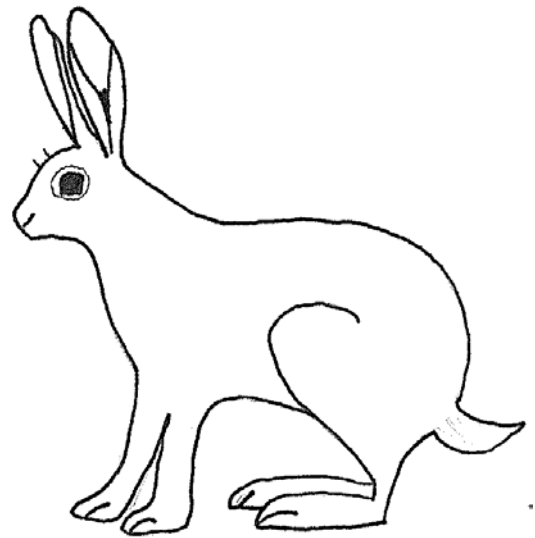
White mangrove

Source: <http://www.floridaoceanographic.org>



Yellow warbler

Source: <http://www.rainforest-alliance.org>



Hare

AMBASSADORS need to know

...about the sea and the different kinds of habitats (plants and animal communities) found there. They need to know about specially protected plants and animals. They need to know about those which we harvest for food and other purposes.

...about fishing laws and regulations, and when certain marine organisms cannot be harvested.

...about how large in size certain species of fish need to be before they can be caught and also that it is illegal to capture or eat marine turtles.

AMBASSADOR REQUIREMENTS:

Basic programme requirement: Find a fun fact about each organism on the following page and colour in the drawings.

Advanced programme requirement: Determine the role of each organism on the following page in relation to the coral reef ecosystem (e.g. habitat, feeding habits, anatomy). Go snorkeling around the reserve. Do you see any of these organisms?

AMBASSADORS NEED TO KNOW THE LAWS SUCH AS,

FISHERIES ACT (1993) AND REGULATIONS (1998)

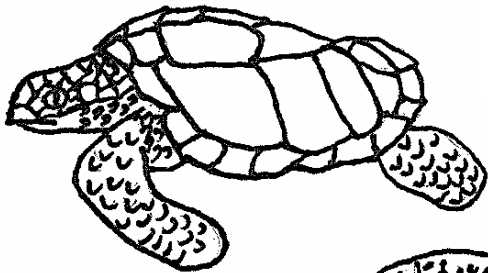
This act is responsible for the fishing industry on the island and includes the protection of certain fish and invertebrate species. Persons should not have in their possession any lobster carrying eggs (roe) or remove the lobster eggs. Persons should not have in their possession a marine turtle or its eggs. You should not disturb the turtle nest or remove eggs from the nest. You should not harvest sea eggs or remove them from a closed area, nor should they be sold in the closed season. Fishers should not bring to shore any yellowfin or bigeye tuna weighing less than 3.2 kg. You cannot fish for any ornamental fish or aquatic flora without written permission and a license from Fisheries. You cannot take or destroy any coral without permission from the CZMU.

Fishermen should not use trammel or entangling nets to catch fish. They should not use seine nets with mesh sizes less than 3.81cm or use pelagic drift nets greater than 2.5 km in length or use fish traps with mesh sizes less than 3.18cm.

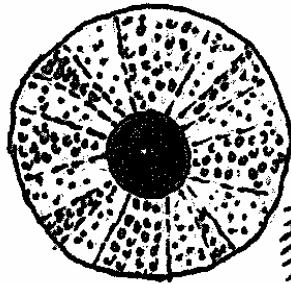
Anyone caught doing any of these actions will be charged a fine of \$50,000 or be sent to prison for 2 years. These regulations do not apply to any fisheries operation conducted for fisheries research.

SOME OF BARBADOS' PROTECTED, RARE AND ENDANGERED SEA PLANTS AND ANIMALS

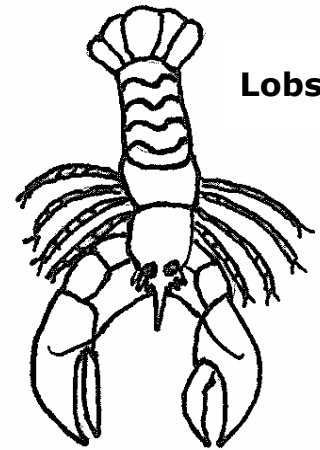
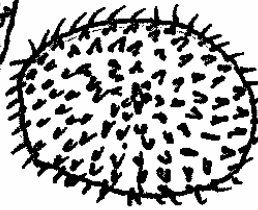
How many have you seen?



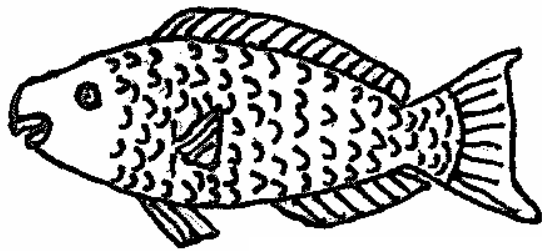
Hawksbill turtle



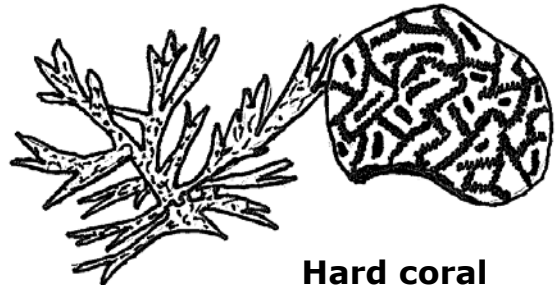
Sea egg



Lobster



Parrotfish



Hard coral

Hawksbill turtle _____

Sea egg _____

Reef fish e.g. parrotfish _____

Hard coral e.g. staghorn and brain coral _____

Lobster _____

AMBASSADORS need to know

...about Barbados' water catchments. They need to know how many there are in Barbados and the number of these that are connected to the marine reserve, and the relationship between watershed units and coral reef ecosystems.

...about Barbados' water zones and the differences between each zone.

AMBASSADOR REQUIREMENTS:

Using the watershed map on the next page:

1. Name the water catchments of Barbados that are connected to the Folkestone Marine Reserve.

-
2. State something interesting about two of the water catchments.

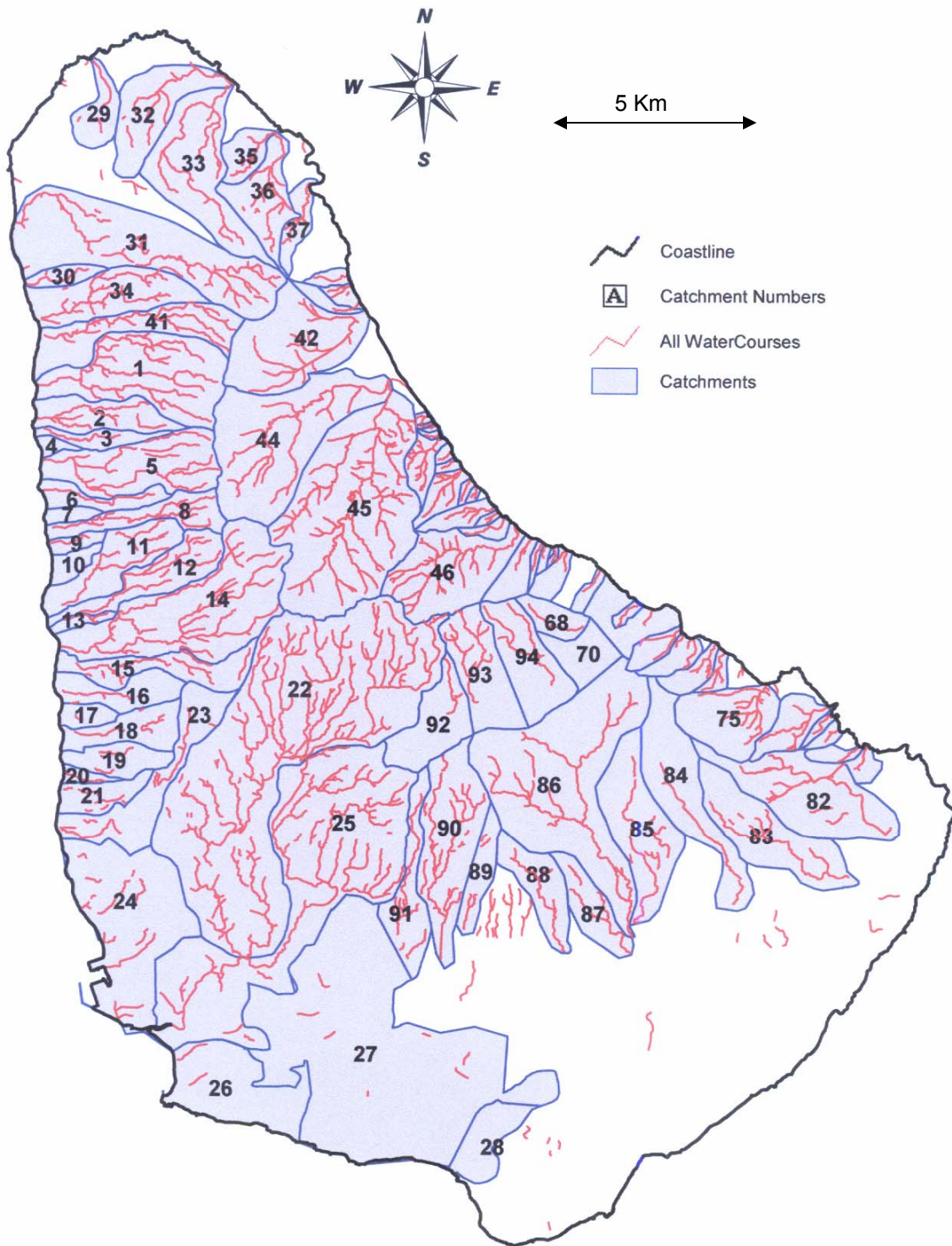
-
3. Are there any particular types of activities that occur in the water catchments that might affect the Reserve?

-
4. Barbados is also divided into five water zones. Do you know them? Using a key, colour the water zone areas in map of Barbados (page 19).

5. Which zone is the Folkestone Marine Reserve located in?

-
6. Which zone do you live in?
-

WATERSHED MAP OF BARBADOS¹



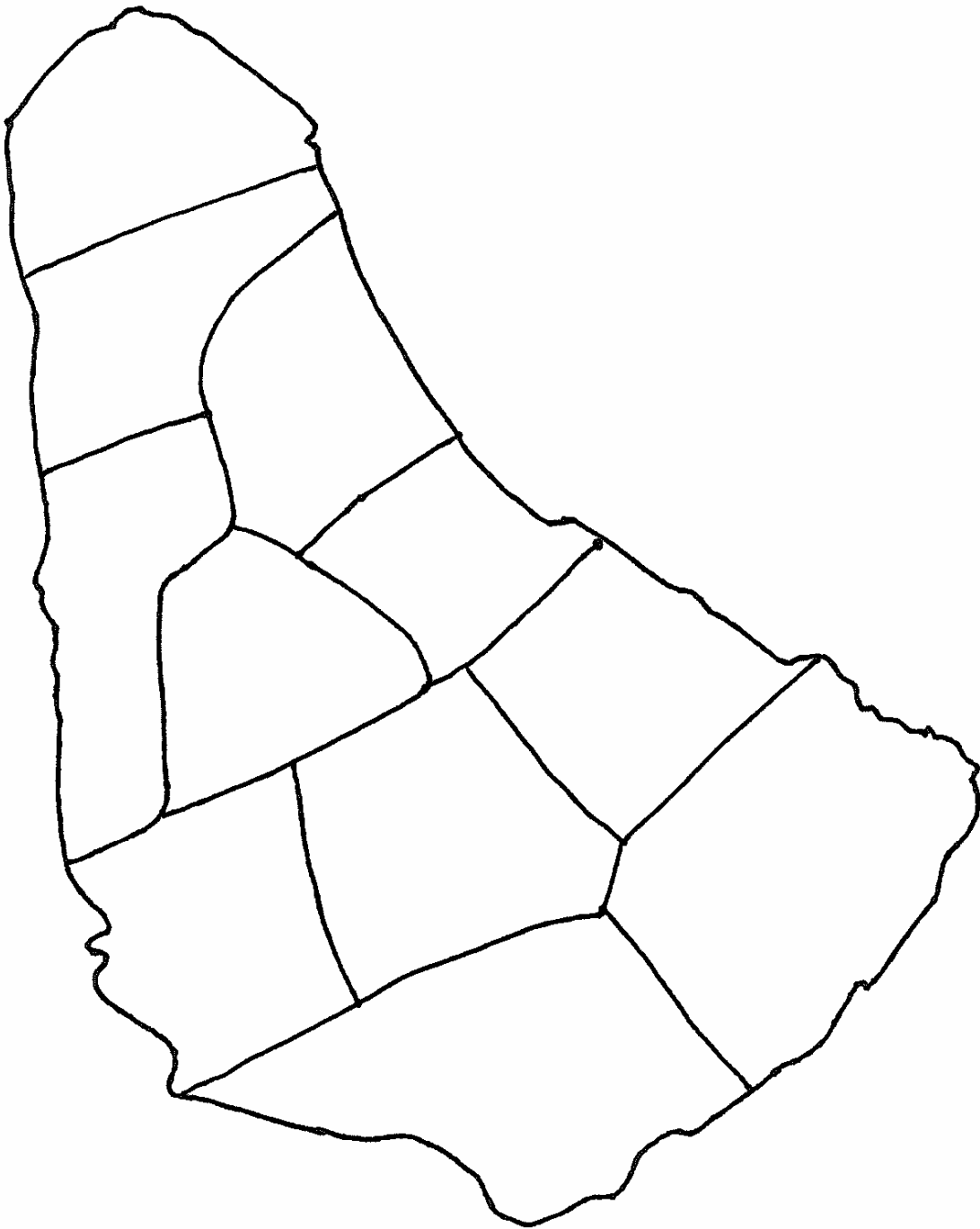
¹ This is an extract from;
EPG, PDA, SEMS. 2004. Gully Ecosystem Management Study: Report on the Broad-Scale Survey and Development of the GIS Database. The Government of Barbados, Ministry of Housing, Lands and the Environment 59 pp.

THE NAMES ASSIGNED TO THE WATERSHEDS

1	Speightstown	33	River Bay South	65	Bathsheba park
2	Goding's Bay	34	Six Men's Bay	66	Tent Bay
3	Little Battaleys	35	Laycock Bay North	67	St. Margaret's
4	Mullins Bay North	36	Laycock Bay South	68	Hothersal
5	Mullins Bay	37	Gay's Cove	69	Martins Bay
6	Upper Carleton	38	Morgan Lewis South	70	Clifton Hall area
7	St. Alban's	39	Morgan Lewis Middle	71	Congor Bay North
8	Read's Bay	40	Morgan Lewis North	72	Congor Bay South
9	Alleynes Bay	41	Heywoods	73	Bath River
10	Mount Standfast	42	Green Pond	74	Bath Park
11	Porters	43	Not assigned	75	Conset Bay
12	Lancaster	44	Walkers River	76	Fortesque
13	Folkestone Branch	45	Bruce Vale River	77	Cummins Hole
14	Portvale	46	Joes River	78	Skeete's Bay
15	Seaview	47	Cattlewash South	79	Culpepper I
16	Molyneaux	48	Not assigned	80	Marley Vale
17	Sandy Lane Bay	49	Cattlewash North	81	Martins Bay area
18	Paynes Bay	50	Springfield	82	Thicket
19	Durants Village	51	Barclays Park South	83	Vinyard
20	Haynesville	52	Barclays park North	84	Summervale
21	Oxnards	53	Cambridge	85	Chapel
22	Constitution River Northwest	54	East Coast Road South	86	Halton
23	Prospect	55	East Coast Road North	87	Brereton
24	Spring Garden	56	Mount Benab	88	Melverton
25	Constitution River Southeast	57	Lakes 1	89	Waverley Cot
26	Carlisle Bay	58	Lakes 2	90	Good Intent
27	Hilbury area	59	Not assigned	91	Bulkley
28	Oistins	60	Lakes 3	92	Redlands Plantation
29	Archer's Bay	61	Lakes 4	93	Claybury
30	Clinketts	62	Bathsheba	94	Sherbourne
31	Maycock's Bay	63	St. Elizabeth's		
32	River Bay North	64	Hillcrest		

MAP OF WATER ZONES IN BARBADOS

Colour the water zone areas



AMBASSADORS need to know

...how to help people and how to find help quickly. Ambassadors need to know about: First Aid; Lifesaving; CPR (Cardio-Pulmonary Resuscitation); Search and Rescue, and Disaster Preparedness.

AMBASSADOR REQUIREMENTS:

An Ambassador's important duty is to help people.

Write down three ways that an Ambassador can help people.

(1) _____

(2) _____

(3) _____

Write the definition of first aid. List equipment and supplies needed for a good first aid kit.

JUNIOR AMBASSADOR SEEK-A-WORD

A C E S U I W B H T F E K L S
 M O V S E H A E O U R C H N E
 B A O A W A T L L E N K T P Q
 A T R R X F S L E Y C T U F H
 S T G G E I Q A T A O S R O E
 S W N A N S L I O D R P T L R
 A A A E V H W R W R A O L K U
 D T M S I E C S N M L N E E W
 O E S X R R V W Y E S G W S I
 R R E E O M T P I G U E K T L
 Z S A Q N E S F I S H G I O D
 L H J O M N N A K O Z N T N L
 W E A C E U L H N L R O E E I
 S D J U N I O R M D E S Z O F
 W A Z R T G B X A S Y O J U E
 A L X C A E S C L P V L B G I
 L G O H L B T E Y L T S A O C
 O A U I F R E S V R E L D N R
 I E M N D E R U P X K L O F E
 A M A R I N E R E S E R V E D

Word list

Junior Environmental Lobster Dottins Bellairs Turtle
 Marine reserve Corals Wildlife Ambassador Sandy lane
 Laws Fishermen Watershed Mangrove Urchin
 Seagrass Wetlands Algae Folkestone Holetown
 Sponge Coast

AMBASSADORS need to know

....about who enforces environmental laws on our island. The Junior Coral Reef Ambassadors are part of a team. They work with many other people to see that all of the environmental laws are being obeyed. An important part of enforcement is teaching people about laws and why it is important to obey them.

Junior Coral Reef Ambassadors are part of this team. Other members are:

Public Health Inspectors: *The inspectors ensure that the environment is kept clean from refuse/solid waste and standing water and also teach others about the importance of a clean environment.*

Park naturalists: *The park naturalists enforce the laws of the park and reserve of Folkestone.*

Fisheries Officers: *The fisheries officers check to see that fishermen have valid licenses. They also enforce the Fisheries Act and Regulations. This means that they can arrest someone for catching fish that are too small or species that are specially protected.*

Coastal Zone inspectors: *They have the power to arrest anyone who removes flora or fauna, or items of historical interest from a restricted area, or removes sand, shingles or gravel from any beach. They have the power to inspect and to ensure that the laws are not violated.*

Police: *They have the power to arrest people who disobey the laws of the country.*

Coast Guard: *They have the power to arrest people who disobey the laws relating to the marine environment.*

Marine Pollution Control Inspectors: *The inspectors are responsible for ensuring that people obey the regulations of the Marine Pollution Control Act.*

IF YOU FOUND SOMEONE DOING THE FOLLOWING THINGS, WHICH TEAM MEMBERS WOULD YOU TRY TO CALL FOR HELP?



1. Someone collecting turtle eggs_____

2. Someone cutting a tree in a national park_____

3. Someone collecting corals in a marine park_____

4. Someone catching lobsters with eggs_____

5. Someone disposing of waste or garbage in the sea_____

6. Someone using dynamite to catch fish_____

7. Someone dropping an anchor on a reef_____

8. Someone fishing for sea urchins during the closed season_____

Are all of these actions against environmental laws? Yes No

AMBASSADORS need to know

...how to do research. They need to collect data, compare findings and compile results for analysis.

Research Barbados' Mangroves

Basic programme requirement

1. Visit Graeme Hall Swamp
2. Observe the different types of mangrove trees in the swamp.
3. Go to the Library to find out more about mangroves and identify other mangrove forests on the island. Draw a map of Barbados and indicate where the mangroves are located. Name 5 locations.
4. Document your observations at the mangrove forest on the plant report sheet on the following page.



Advanced programme requirement

1. Visit the Mangrove Swamp at Holetown Lagoon.
2. Collect water samples from the lagoon and sea water from the mouth of the lagoon at Discovery Bay on a dry day.
3. Collect water samples from the sea water on a very rainy day after the lagoon breaks.
4. Conduct tests for turbidity, ph, temperature and salinity.
5. Compare the results between sea water on a clear day and on a very rainy day. Are there any differences?

PLANT REPORT

DATE OF ENTRY/OBSERVATION _____

Family _____ Genus _____ Species _____

Common Name _____

Description of roots: _____

Description of leaf: _____

(Leaf arrangement, [opposite, alternate, whorled])

Type of tree: _____

Where does it grow? _____

Reproductive status _____

Drawing of leaf or root system

Family _____ Genus _____ Species _____

Common Name _____

Description of roots: _____

Description of leaf: _____

(Leaf arrangement, [opposite, alternate, whorled])

Type of tree: _____

Where does it grow? _____

Reproductive status _____

Drawing of leaf or root system

10 TASKS YOU NEED TO COMPLETE TO BECOME A JUNIOR CORAL REEF AMBASSADOR

1. Find a place that needs cleaning, and keep it clean.

Place cleaned Witness Signature Date

2. Help someone in need. Describe what you did.

Person helped Witness Signature Date

3. Be able to identify at least three types of reef fish

4. Be able to identify at least three types of coral.

5. Visit four special areas in Folkestone Marine Reserve

- Hometown Hole Lagoon South Bellairs Reef
- North Bellairs Reef Folkestone Marine Reserve Office
- Bellairs Research Institute

6. Teach your siblings or class, something about Folkestone Marine Reserve. Write what you taught them.

7. Meet the Folkestone Marine Reserve Park Naturalist.

8. Complete three of these activities:

- Build a compost pile
- Save water
- Plant a tree
- Separate trash for recycling
- Keep a nature journal/sketchbook and write/draw in it at least once a week
- Read a book about the environment and make a report
- Conduct an activity for World Environment Day
- Take part in a beach clean-up

9. Learn and be able to recite the Junior Coral Reef Ambassador Pledge written on the back of this manual

Witness Signature

Date

10. Complete all of the Junior Coral Reef Ambassador Requirements

Junior Coral Reef Ambassador
Teacher Trainer Signature

Date

THE JUNIOR CORAL REEF AMBASSADOR PLEDGE

My pledge as a Junior Coral Reef Ambassador is to strive to protect the coral reefs and the marine environment of Folkestone Marine Reserve.

I promise to share information with my peers and stand as a leader in protecting my environment.

By Derreck Alleyne
Alexandra School

Caribbean Conservation Association
One Caribbean, One Vision



NATIONAL CONSERVATION
COMMISSION

