



Independence Resource Booklet 2010

The Fishing Industry

The Sea Around Us



BARBADOS
CELEBRATES

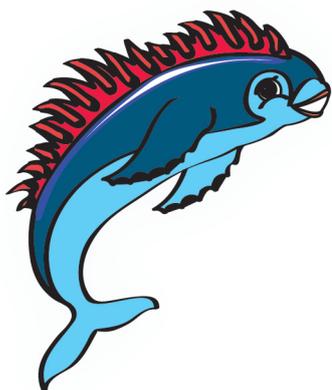
44 years of

INDEPENDENCE

1966-2010

Fishing A Renewable Resource

Resource Booklet
2010



The Fishing Industry

The Sea Around Us

BARBADOS
CELEBRATES

44 years of

INDEPENDENCE

1966-2010



We Write Our Names On History's Page

*A special tribute in memory of the Honourable David John Howard Thompson
sixth Prime Minister of Barbados Jan 2008- Oct 2010*



Photograph by Basil Bishop

*Prime Minister David Thompson delivering the
Feature Address at the PBSE Launch*

**Message delivered by the Hon. David Thompson
Prime Minister of Barbados at the Official Launch
of the Public Broadcast Service (Education) on
Wednesday, October 22, 2008.**

Mr. Master of Ceremonies, Honourable Patrick Todd, Acting Minister of Education & Human Resource Development, members of the Senate, Permanent Secretaries, distinguished ladies and gentlemen. Today's launch of this Public Broadcast Service by the Ministry of Education and Human Resource Development is a historic occasion for all of us, and I am very happy to be here for such an event under the auspices of the current acting Chief Audio Visual Aids Officer Mr. Walter Harper. I am very happy to see this particular project come on stream and I am sure it is the fulfillment of a dream shared by many educators and leaders that Barbadian school children and those adults committed to lifelong learning will one day catch up at least in terms of access to knowledge.

I congratulate the Audio Visual Aids Department of the Ministry of Education and Human Resource Development for developing a Public Broadcast Service dedicated to education. Thanks to the technological revolution and the related digitalization, information can be transmitted over great distances in real time, and for the first time in human history, information is readily available in vast quantities to be disseminated instantaneously at a remarkably low cost.

Satellites, microwave lengths, cable networks and wireless connectivity have enabled broadcasters to transcend space and time, and today, anyone with a computer can easily access information on almost any subject. Moreover, computer based information systems can convert, store, protect, process, transmit and retrieve information. This can be done using a variety of devices that include cellphones, music centres, ipods, Xboxes, high definition television, digital cameras, email, the internet and the web.

The pace of change brought on by such technology is cumulative and is leading to new products and services coming on to the market on a daily basis. The interesting thing about this revolution is that children and young people have a definite advantage over their elders in the use of these technological gadgets.

They have a natural aptitude for mastering these appliances because children are naturally inquisitive in the technology rewards inquiry. Our children are growing up with these gadgets and are therefore not afraid to interrogate them. Since these tools are based on intuitive learning, those who have the courage to push them to the limits learn the most and fastest.

However, like most innovations these facilities bring both opportunities and threats to societies across the

We Write Our Names On History's Page

world. Let me deal with the threats first. Every country in which people have free access to these mass media of communication has had to face the threat of cultural penetration, and even before such technology was available the threat of cultural penetration was very real. Even the remaining totalitarian regimes of the world, after decades of restricting access to the media have had to relent, the information age recognizes no barriers. In Barbados we have to face the serious threat of cultural penetration and the negative effect it is having on our young people. The Report of the National Commission on Law & Order in Barbados, in June 2004 made a clear causal link between the break down in law and order and values. Thus, I want to quote what they said, 'the decline in law and order results from a decline in values'.

The Commission argued that the traditional agencies of socialization, especially the family, the school, the church and the community have failed to transmit the core values of respect, good manners, honesty, integrity and discipline. It rightly went on to argue that no society could survive without such commonly held values, hence, the establishment of a broadcast service such as this gives us the opportunity to address this national issue. I also want to say that I also view it as the obligation and responsibility of the Caribbean Broadcasting Corporation which is a publicly owned state corporation to also work with government and with persons of goodwill and national interest in promoting these values.

I know that there has been a lot of discussion and I see proposals on my desk, the majority of which I don't agree with to establish a public broadcast station in Barbados. The CBC has benefitted for eons from public funding, it is a national station, its job is not to take the culture of other countries, off satellites and transmit them into our homes on a

nightly basis and then ask us to pay for it. Its job is to project images of our society and our culture, and our values, and if our values are no different from the values of the people in North America, or in Asia, or the United Kingdom, then we don't need a Caribbean Broadcasting Corporation, we should not be guaranteeing loans or other benefits to it. So I am not in favour of the establishment of a new public broadcast station, and I want to say so publicly. CBC should be projecting images of Barbados and Barbadians. I also want to say that it is for this reason, the reason that I mentioned earlier about the transmission of important values that I welcome the launch of a broadcast service such as this.

When I was a lot younger, I remember Rediffusion used to invite students under the direction of Mr. Harold Wharton on to radio on mornings to participate in programmes of public education. We used to come early in the morning just before Caroline Barrow's 'Coffee Club'. Sometimes we were summoned into the school hall to listen to those programmes. I don't hear them anymore, of course there's no Rediffusion, but I don't think we should throw out the baby and the bathwater together.

So according to the feasibility study on the use of public broadcasting in the Caribbean for Open Distance Learning, carried out by Betty Mitchell and Christian Murigan in May 2002, there are three models of public broadcast stations available. One model of public broadcasting for one hour a week on commercial stations, the other offers daily blocks for public broadcasting on commercial radio and television stations and the third one offers a full multimedia facility that is dedicated to the production and management and dissemination of public information. We in Barbados have had models one and two for many decades. Model one



We Write Our Names On History's Page (continued)

is relatively easy to arrange or so they say. Barbados augmented its model two Public Broadcast Service with the establishment of the Caribbean Broadcasting Corporation using wireless radio since 1963 and television to disseminate information to the public periodically.

This government-owned and operated mixed mode facility is still the only legal domestic television broadcaster in Barbados. With respect to model three, informal education, the journey started in the 1940's when the Audio Visual Aids Unit was established under Howard Hayden. This was based on the premise that children learn better when visual aids are utilized.

At first visual aids were used as a supplement to face-to-face talk and chalk and this insight was further developed in 1969 when the Audio Visual Aids Department was established by an Act of Parliament. The Department was mandated to design, produce and broadcast educational material and the acquisition of the St. Michael Studio with its large radio and television studios considerably strengthened the capacity of the Audio Visual Aids Department to deliver indigenous educational materials to our schools. Throughout the period, the Audio Visual Aids Department worked closely with the Barbados Government Information Service to produce and disseminate information to the Barbadian public.

My Government is therefore delighted to launch this Public Broadcasting Service for education after so many years of waiting. Today, with the launch of this public broadcast service Barbados has truly entered the information age. The vast array of information and communications technologies now available offer many opportunities for raising the standard of living and the quality of life for the citizens and residents of Barbados. This service will begin by focusing

on formal education and that is a very positive development.

So I have great pleasure and honour in launching PBS Public Broadcast system as part of the Ministry of Education and I hope that it will make a significant contribution to shaping and leading the future of Barbados. Thank you.



Photograph by Basil Bishop

Prime Minister Thompson after unveiling the Plaque at the Gordon Corbin Studio



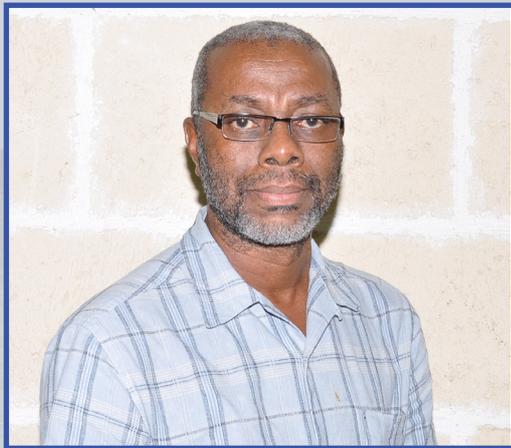
Photograph by Basil Bishop

Prime Minister Thompson viewing an interactive MRD Production



Information on the Fisheries Sector

By the Chief Fisheries Officer



Chief Fisheries Officer Stephen Willoughby

Photograph by Basil Bishop

Importance of the local Fishery

Fish and fishing are traditional in Barbados. Historical records showed that fishing was practiced by the first inhabitants of Barbados. Today fishing is a major economic activity in Barbados. Through the years the fisheries sector has evolved into a hive of economic activities involving several small businesses in areas such as fish harvesting, fish vending, fish processing, boatbuilding, fish exporting, distribution of fish and supplying of services to the fishing industry. These activities play a vital role in supplying food for the Nation, providing employment for thousands of Barbadians, generating revenue for government and earning foreign exchange.

Government's role in the Fishing Industry

Government manages, develops and protects the health of the fisheries resources to ensure that fish continues to be a source of food, a provider of employment and economic benefits as well as social well-being for present and future generations of Barbadians.

Government provides and manages the infrastructural facilities of the Bridgetown, Oistins and Speightstown fish markets. The markets provide facilities for unloading, processing and vending of fish under hygienic conditions. Government also maintains the boatyards such as those at Consett Bay and Oistins where fishermen construct and repair their boats.

In addition, government provides services to the fishing industry through its Fisheries Division. These services include:

- Inspection of fishing vessels to ensure that they are safe and fit for fishing
- Administration of concessions to the boat owners
- A tractor service for hauling and launching of fishing boats
- Providing advice on fisheries matters

Definition of a Fishery

The fishing industry comprises all those activities and persons involved in the harvesting, marketing and distribution of fish and fishery products. These include the fish harvesting, fishing gear, fishing boats and vendors, processors, boat owners, boat builders. It also includes associated fishing facilities as such unloading sites, processing plants and boatyards.

Value of the Fishery

A recent survey done by Mahon et al. (2007) estimated that the value-added component of the fishery sector at \$51.2 mil. Further work is needed to estimate the value of other components of the fisheries sector such as value of the fishing fleet and other private sector investments.



History of the Fishing Industry in Barbados



Courtesy MRD Archives

Fishing vessels of earlier days

From the earliest times of its settlement, fishing was one of the ways in which the people of Barbados provided fish as a means of food for their families. Throughout time, the livelihood of many Barbadian men and women was dependent on the fishing industry. Over the years, the industry has developed into a viable economic resource which provides a plentiful supply of fish for local consumption.

As a result of the increasing potential of fishing in the earlier years, it became necessary to make improvements in the industry. The Fisheries Division was established in 1944 to assist fishermen. Soon thereafter, fish markets and sheds were constructed across the island at major landing sites to accommodate fishermen and their daily catches.

For many years the fishermen in Barbados relied on the use of sail boats to go out to sea, but in September 1955, hurricane Janet destroyed many of the boats, making it difficult for fishermen to ply their trade in fishing immediately after this devastating event.

Soon afterwards, the sail boat was replaced by motor powered boats or launches, as they are called locally. This improved vessel provided fishermen with innovative methods of fishing which helped to increase the number of fish catches and further establish the industry as one of major economic value to the country.

Continued improvements, expansion in the industry and the introduction of iceboats in 1974 made it possible for fishermen to preserve their catch and remain at sea for much longer periods of time. They did this by preserving their daily catches in insulated ice holds on the boats.

At present, the fishing fleet is made up of launches, moses and motorized vessels, also called day-boats; which go to sea on a daily basis. There are also larger trawler-type vessels or ice-boats equipped with cold storage facilities with the capacity to remain at sea for many days before returning to shore.

Over the years, infrastructural improvements and expansions in fishing resulted in a more vibrant and commercially oriented fishing industry. This was due in part to the many contributions made by public and private investments in the areas of processing and production of fish.

Fish processing grew at a rapid pace and this encouraged many processors to invest in the more modern ice boats. Also, the manufacturing and production of fiberglass boats allowed fishermen to remain at sea for longer periods of time. Since then, many fish processing businesses have been set up in Barbados providing wholesale and retail services in fresh, frozen and exotic seafood for local use and export.



The Importance of the Fishing Industry to Barbados

The fishing industry in Barbados provides employment and income for hundreds of persons. Many of them are involved in the catching, selling, processing and distribution of fish, as well as the boat-building trade.

The income derived from this industry provides employment for them as a means of earning income and support for themselves and their families. In addition, fish are a source of food, which has much nutritional value and contributes to the health and well-being of Barbadians and visitors.

People are employed in different sections of the industry which provides employment and include jobs such as catching the fish, wholesaling and retailing (selling), processing, boat building, local distribution and the export of fish which earns foreign exchange for the country.

The importance of the industry to the country is seen as so crucial and viable that in 2008, government outlined plans for improving the sector and deepening its commitment to the industry. The government revealed plans to build jetties in the south and east coasts of the island to encourage the development of the boating industry.

In his address to Parliament the Prime Minister, the Honourable David Thompson further stated that the development of the boating industry “Will bring with it the creation of skilled jobs for persons who have to service the boats and their equipment, and will also expand the ship chandlery business”.

The main fishing season in Barbados begins in November and continues into July when the majority of the catch is landed. However, there are some types of fish that are seasonal but reef fish are caught and sold throughout the year.

Fishing Facts

- Fish is an important source of protein and a regular diet of fish is highly recommended by nutritionists.
- Fish oil is derived from the tissues of oily fish and is recommended for a healthy diet because it contains omega 3 fatty acids which help to reduce the risk of heart disease. Salt water fish is high in omega 3 fatty acids which are said to be heart friendly.
- Omega 3 fatty acids are a family of essential fatty acids which are said to be nutritionally important and necessary for human health but the body cannot make them; they must be obtained through food. They are found in fish such as salmon, tuna and halibut.
- Omega 3 fatty acids play a very important role in brain function, as well as normal growth and development.



People in the Fishing Industry

Boat Owner	–	Own fishing boats
Fisherman	–	Catches fish
Boat Builder	–	Builds and repairs fishing boats
Fish Vendor	–	Sells fish at the landing sites
Fish Hawker	–	Sells fish away from the landing sites
Fish Cleaner	–	Scales, guts, cleans and fillets fish
Marine Mechanic	–	Repairs boat engines



In the Sea Around Us - Types of Fish Caught

Many species of fish are caught by our fishermen; some of them are very well known to many of us, while others are not as familiar. Some of them are: parrot fish, grunts, king fish, surgeon fish, snapper, jacks, flying fish, bill fish, blue/white marlin, dolphin, wahoo, tuna/albacore, barracuda, shark, sword fish and groupers.

Can you name other fish not mentioned here?

The types of fish caught by our fishermen can be divided into three groups according to the areas in which they are caught. They are grouped as:

- Inshore reef resources
- Offshore reef resources and
- Pelagic resources

Inshore Reef Resources

Many of the inshore fish are harvested from among the coral reefs where they live. They are caught in traps, also known as pots. Fish such as grunts, squirrel fish, parrot fish and surgeon fish are among those caught by fishermen. Also included in inshore reef resources are the sea eggs, lobster and seamoss. Pot fish are usually brought to shore and sold early in the morning and are most often harvested when flying fish and dolphin are not in season.

Offshore Reef Resources

Snapper or red fish, hinds and groupers are listed as the type of fish in this category. These fish are caught on the slopes and banks of the seashore by fishermen using live bait and a hand lines.

Pelagic Resources

The fishing industry in Barbados is very dependent on pelagic resources, as it is the main resource of the

industry. This type of fish live near the surface of the ocean and chief among them are dolphin, flying fish, king fish or wahoo, bill fish, shark and tuna. The big eye and yellow fin tuna are also called albacore while black fins and skipjacks are called bonito by local fishermen.

Gill-netting, trolling, lurk lining and long lining are some of the methods used to catch this type of fish. The season starts in October and continues into July of the following year.

ACTIVITY

2

SCRAMBLES

Unscramble the "FISHY" words below.

NDOPLIHS.....

KSRAH.....

NATU.....

HLEWA.....

RAG.....

LSESA.....

DGNIIV.....

MSGNIWM.....

TREAW.....





Landing The Fish

There are many fishing villages and landing sites throughout Barbados, especially along the coastal areas of Christ Church, St. Peter, St. James, St. Philip and St. John. They are classified either as primary, secondary or tertiary sites.

Primary landing sites are known locally as markets and have market buildings, cold storage facilities, ice, lockers and a haul-out area. There are three main primary landing sites located across the country; they are found in Speightstown, Oistins and Bridgetown.

Many primary sites were upgraded from secondary sites. These include Weston Fish market, Consett Bay, Skeetes Bay, Tent Bay and Paynes Bay.

The landing site in Bridgetown is known as the Bridgetown Fisheries Complex and is the largest of the three main primary sites. The facilities at this market include a jetty for unloading fish, areas for boning and selling of fish, ice making facilities, vendor stalls and facilities for cold storage. At the Bridgetown and Oistins markets is a boat yard, where boats are serviced and repaired.

The majority of fish catches on the island are landed at six primary sites, which include Bridgetown Fisheries Complex, Oistins and Speightstown, Weston Fish Market, Consett Bay, Six Men's and Skeete's Bay.

Secondary landing sites are also known as sheds and have open structures with electricity, water and areas for gutting and boning fish. Many of the secondary sites are being upgraded to markets which will have such facilities as cold storage, ice, lockers and haul-out areas.

Tertiary landing sites are locally known as beaches with no shelter facilities or vending stalls. At these sites, boats are moored or beached and the fish catch landed. Unlike the other two types of landing sites, these sites have no physical infrastructure such as market buildings and cold storage.





publication
and other

Fishing Vessels

There are over six hundred fishing vessels used in the fishing industry. They are made up of launches, also called day boats; ice boats, moses, and long liners.

Launches or Dayboats

These are wooden vessels of about 6 to 12 m in length which use inboard diesel engines. They are used on day trips for catching flying fish and large pelagic fish like dolphin and albacore.

Iceboats

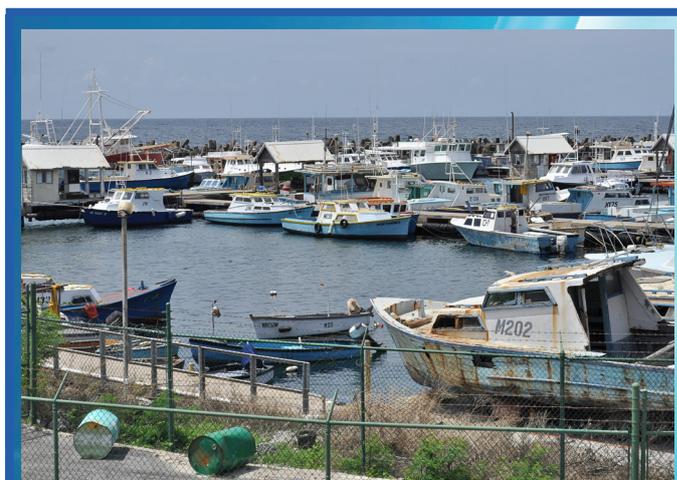
These are larger than the launches or day boats and are propelled by inboard diesel engines. They are also called offshore vessels and remain at sea for between five and ten days and are used for catching flying fish and pelagic fish. Ice boats are made from wood or fibreglass and measure more than 12 metres in length. They are well equipped with large insulated ice holds, safety apparatus, as well as navigating and communicating tools.

Moses

Moses are open boats which are propelled by oars or outboard engines and are used mainly for reef and coastal fishing. The fishing gear used with this type of boat include fish traps, cast nets, hand and trolling lines.

Longliners

These vessels are much larger than the dayboats and are more than 12 metres in length. They have inboard diesel engines and are used for harvesting such fish as the sword fish, tuna and large pelagic fish. Longliners remain at sea for periods of seven to fourteen days.



*Photograph by Basil Bishop
Boats moored at the Bridgetown
Fisheries Complex*

ACTIVITY

3

Rearrange the letters below to spell out six names of animals found in or near the sea.

CABR _____

SLLEGAU _____

NODIHLP _____

NIGYLF IHSF _____

LRTETU _____

HCNCO EHL SL _____

Adapted from 'The Fishing Industry of Barbados', a publication of the Fisheries Division, Ministry of Agriculture and other documents produced by The Fisheries Division.

Land of Flying Fish



Barbados has been called ‘The Land of Flying Fish’ because this species of fish was once very plentiful in the waters around us. Do you know how this fish got its name? For those who do not know, the flying fish got its name because it can leap out of the water and glide through the air and remain airborne for ten seconds or longer. The fish uses its pectoral fins (wings on either side just behind its head) and ventral fins (wings on the underside of its body) as wings and its tail to help glide it through the air at around forty miles an hour.

Flying fish swim in shoals and are caught in gill nets. At one time it was the most popular fish sold commercially. Between the months of December and June flying fish are usually plentiful but at any time during the year they can also be bought frozen from supermarkets and fish processors.

Flying fish in Barbados is a national delicacy and are prepared in a variety of ways. Even though they are not netted in the waters around us in very large numbers as in previous years, the traditional flying fish and cou-cou is still considered by many Barbadians to be the national dish of Barbados.

Which is your favourite, fried, baked, steamed or roasted flying fish?

Have you ever heard of a species of flying fish called a ‘guinea man’ and do you know what it is? A ‘guinea man’ is bigger than the regular flying fish which is approximately twelve inches long. The ‘guinea man’ flying fish measures about eighteen inches in length.



Photograph by Basil Bishop

Fish Vendor Merlene Bowen cleaning flying fish at the Berinda Cox Fish Market, Oistins

ACTIVITY

4

Find the names of six things you could find in the sea in the bubble chains!

C R O Y S T E R E O C T O P U S T U S H E L L H

S T I C R A B R E S H A R K L E I S T H S I F Y L L E J O C



Barbados National Anthem

**In plenty and in time of need
When this fair land was young
Our brave forefathers sowed the seed
From which our pride is sprung,
A pride that makes no wanton boast
Of what it has withstood
That binds our hearts from coast to coast
The pride of nationhood.**

Chorus:

*We loyal sons and daughters all
Do hereby make it known
These fields and hills beyond recall
Are now our very own.
We write our names on history's page
With expectations great,
Strict guardians of our heritage,
Firm craftsmen of our fate.*

**The Lord has been the people's guide
For past three hundred years.
With him still on the people's side
We have no doubts or fears.
Upward and onward we shall go,
Inspired, exulting, free,
And greater will our nation grow
In strength and unity.**



*Lyrics by:
Irving Burgie*



*Music by:
Roland Edwards*

The Way We Work

Pictures courtesy: MRD Archives



Here





Barbados National Flag



Barbados National Coat of Arms

THE NATIONAL PLEDGE

*I pledge allegiance to my country Barbados
and to my flag,
To uphold and defend their honour,
And by my living to do credit
to my nation wherever I go.*



*National Flag designed by
Grantley Prescod*



*National Pledge
written by
Lester Vaughan*



*Coat of Arms designed by
Neville Connell*



Dolphin Facts



Fisherman displaying dolphin for sale

Photograph by Basil Bishop

The dolphin is symbolic of the fishing industry in Barbados and is depicted on the Coat of Arms, one of the national symbols of Independence.

The dolphin is found in the Pacific, Atlantic and Indian Oceans and flourishes in temperate, subtropical and tropical waters. It is caught by fishermen who fish in these areas, including the waters of the Caribbean sea.

The green dolphin caught by our fishermen feeds mainly on smaller fish, including flying fish. They are preyed on by larger fish such as sharks, swordfish, blue and black marlin and yellow-fin tuna.

The dolphin is also called mahi-mahi, dolphin fish, dorado, lampuga, rakingo, calitos, naverikos and lampuka in other countries. It is a fish, cold blooded and must not be mistaken for or confused with the much larger dolphin of the whale family. The female dolphin fish, produces eggs in the form of spawn, the eggs are fertilized in the water by sperm from the male dolphin.

The dolphin has a dorsal fin which runs the length of its body, pectoral and pelvic fins which are usually yellow in appearance and a forked tail. The green dolphin is easily identifiable by its unique shape and colour, with dazzling colours of gold on the sides and bright blues and greens on the sides and back. When out of the water, the dolphin's colour often changes, through various hues, to a muted yellow-grey upon death.

Dolphins travel alone or in groups, also called schools. Males are usually larger than females and have prominent foreheads protruding above their bodies. Females have a rounded head. The green dolphin can grow to a length of almost three feet or more and the average weight seldom exceeds forty pounds.

ACTIVITY

5

Unscramble the letters to reveal the six things that Rob wants to take with him to the beach while waiting for his father to return from his fishing trip.

1. E O W
L T S

2. E L B C
A H B L A

3. N S M
A U C
E R

4. L A U N
G S S
E S S

5. N A D
L S A S

6. D R
I O A

Catching the Fish

Fishermen use a variety of methods to catch fish in the waters around us. These include the use of fish traps or pots and gill nets. Fish pots are usually referred to as shallow or deep pots. A large number of fish are caught in shallow pots which are set in the vicinity of the coral reefs. Deep pots are set in deeper water and fish such as snappers and other larger fish are mainly caught in this type of pot.

These fish pots are set on the reefs at a depth of between three and twenty metres of water on the west and south coasts of the island.

Fish pots are made from chicken wire-mesh attached to a wooden frame with a large funnel-like opening on the outside, which narrows on the inside. The fish swim into the pot through this opening but find it difficult to get out and therefore become trapped.

There are four types of fish pots named according to their shapes. There are:

- Z-pot
- A-pot
- S-pot
- Rectangular pot

Though all types of pots are used by fishermen, it is common among fishermen along the south coast of the island to use the rectangular pots, while those along the West coast generally use the S-pots.

Pot fish are made up of a variety of species of fish such as grunts and surgeon fish. These fish are mainly harvested between July and October. Fishermen who set these pots harvest and sell the fish very early in the morning and it is common to see sellers by the wayside offering for sale their catch of the day.



Photograph by Basil Bishop

Fisherman Chelston Moore preparing a fish pot at Oistins Beach

ACTIVITY

6

FISH WATCH

How many fish are hidden in the letters around the fish?





Catching the Fish (continued)

Fishing Nets

Different types of fish nets are used by fishermen. These are the seine net, the cast net, the gill net and the dip net.

Seine nets are used from small unpowered boats or moles which are towed by larger motor-powered launches. While the launch moves in a circular pattern, the net is lowered into the water. Divers enter the water and chase the fish into the net while it is being pulled into a tight circle. The divers overlap the bottom ends of the net and trap the fish. The net is then pulled into the boat and the fish are removed.

Cast nets come in a variety of sizes and many of them are handmade with cotton or nylon. These are used by fishermen to catch small fish which are then used mainly for bait fishing. When using the net the fisherman places the main centre cord of the net in his mouth while the net is over his shoulder or arm. He releases the net in the ocean by swinging his body in a semi-circular movement. When he does this, a force is created, which allows the net to open in a flat circular shape when it is released. The net sinks to the bottom of the sea and covers any fish in its path.

With much skill, timing and precision the fisherman will quickly pull the main cord of the net. This draws the outer edges of the net together and trap the fish. The fisherman pulls the net in and removes the fish.

Gill-nets

Gill nets are used to catch flying fish. The gill net normally traps the fish through the protective covering of the gills. When fishermen reach the area where the fish are plentiful they turn the boat engine off and allow the vessel to drift. Screealers made from bundles of cane trash are placed in the sea where they float on the surface of the water. Small pieces of fish

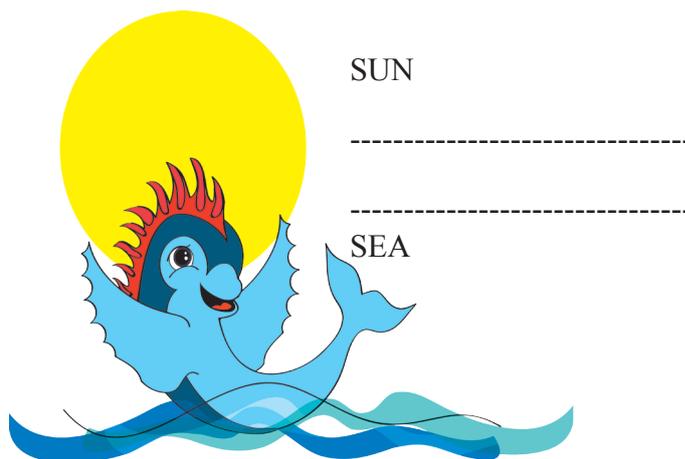
also called chum are placed in a bait basket and hung over the side of the boat and shaken to allow some of them to be released in the water. This attracts fish to the site. A gill net is lowered into the water when a fair quantity of flying fish gather in the area where the screealers are positioned. The fish are then trapped in the net when their gills become entangled.

Dipnets, troll lines and lurk lines are also used to catch flying fish.

ACTIVITY

7

See if you can change SUN into SEA in only two moves by changing one letter at a time.



SUN

SEA

FACTOID



No other flag may be flown above the Barbados flag. When several flags are flown on one halyard, the Barbados flag is placed at the peak.



Endangered Species

Many species of animals are at risk of extinction and require legal protection to ensure their survival. In Barbados, though there are few such animals, the sea egg and the sea turtle, in particular the hawksbill turtle fall into the category of endangered species. They presently exist in such small numbers that it became necessary to enforce legal protection because of their importance to marine life and society as a whole.

Sea Eggs/ Urchins

Barbados is surrounded by coral reefs which provide a home for many sea animals. These include sea eggs, pot fish, turtles, conch, coral, seamoss and others. The sea egg, also called sea urchin, is an invertebrate which lives in the ocean, in shallow water, on the rocks and coral and feeds on algae (sea weed).

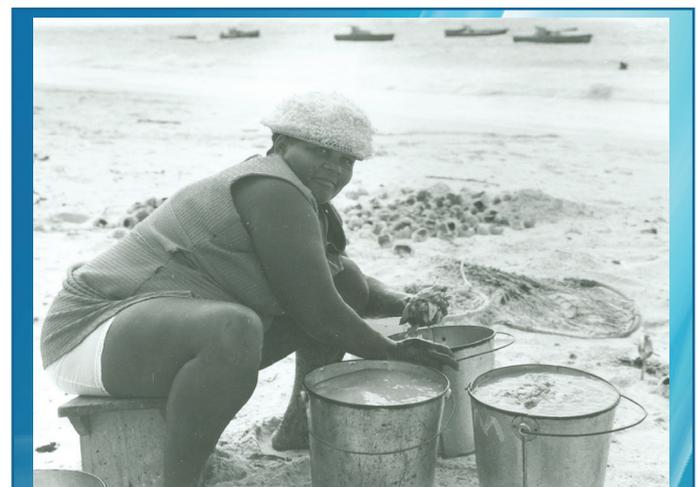
The roes of the white sea egg is a well known Barbadian delicacy and is one of seventeen species of sea urchin (Echinoidea) found in the waters of Barbados. The sea egg has a long spined shell which contains five golden roes in each shell.

The sea eggs are harvested from the sea by skin divers who wear masks, snorkels and fins. They remove the sea eggs either by hand or with a metal scraper, bring them to shore, break the shells and remove the roes. These are then washed and repacked into whole shells with the spines removed. They are then steamed, wrapped in the leaves of the sea grape and sold by vendors.

The sea urchin or sea egg is a very important aspect of our coral reef eco-system because it helps to keep the reefs healthy by eating plant algae. This is very important because this algae could grow on the coral and smother them causing lives of other animals living in the coral reef to be threatened.

During the nineteen eighties, the sea egg population in Barbados declined significantly because of a virus which spread throughout the waters of the Caribbean sea. As a result, sea-egg harvesting is now controlled by law to avoid further depletion of the species. Efforts were made to conserve and protect the sea egg and in areas where they were plentiful, adult eggs were removed and placed in areas which were almost depleted to help replenish the stock.

In 1987, a two year ban was implemented, preventing the harvesting of sea eggs. It is illegal to harvest or sell sea-eggs during the period of the ban. Sea-egg season usually occurs during the months of September to December.



Courtesy MRD Archives

Preparing sea eggs for sale.

FACTOID

Barbados is party to the Convention on International Trade in Endangered species of Wild Fauna and Flora (CITES), which restricts or prohibits the commercial trade in turtles and turtle products.



Endangered Species (continued)

Turtles

Turtles are reptiles and lay eggs which are soft and leathery.

The two species of turtles that are common in the waters around us are the hawksbill and the leather back.

The Hawksbill Turtle is a small to medium sized marine turtle having an elongated oval shell, a small head, a hawk-like beak and flippers with two claws. In general its colour is brown with splashes of yellow, orange, or reddish-brown. As an adult, the hawksbill may reach up to 3 feet in length and weigh up to 300 pounds. The hawksbill feeds mainly on sponges and is often associated with the coral reef environment.

Sea turtles lay their eggs on dry, sandy beaches where large numbers of eggs are deposited in holes dug into the sand. The hawksbill turtle nests at night when between 150 and 200 eggs are laid. They are then covered by the turtle and left to incubate for about 60 days. The turtle then returns to the sea. When the young turtles hatch they squirm their way to the surface and head toward the sea since they are not cared for by the mother. The nesting season of the hawksbill turtle occurs between April and November.

The hawksbill turtle is listed among the critically endangered species

The Leatherback Turtle is considered to be the largest turtle on earth; can grow up to seven feet and can exceed 2,000 pounds in weight. The inky-blue carapace of the leatherback is flexible and almost rubbery to the touch. They can dive to depths of 4, 200 feet deeper than any other turtle. Many leatherbacks fall victim to fishing lines and nets, or are struck by boats.

They can also die if they ingest floating plastic debris mistaken for their favourite food jelly fish. They are also designated as endangered. The female leatherback sea turtle heaves herself from the surf at night to nest. Females often return to the same nesting areas where they were born to lay their eggs.



Photograph by Elvis Bryan

ACTIVITY

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Word Match

Students! See if you can pair up each of the words listed below. Pair a word from the left with a word from the right to make ten new words.

SUN	BALL
SAND	WEED
SEA	FISH
SAIL	CHAIR
BEACH	BOAT
ICE	LOTION
DECK	CASTLE
COCO	HOLIDAY
STAR	CREAM
SUMMER	NUT



Corals



Sea coral

Photograph by Elvis Bryan

Coral reefs are made up of small animals called coral polyps which live in the ocean and form an important part of marine life. Many fish live and feed in and around coral reefs. Coral reefs grow very slowly and take hundreds of years to form. They are made up of tiny animals called polyps, which create limestone skeletons around them using calcium from the sea water.

There are two types of coral, hard (stony) coral which get their hard outer structure by taking calcium from the salt water and soft coral. Coral reefs produce beach sand and act as barriers, which protect the land from erosion by strong waves and storms.

The Importance of Coral

In Barbados, there are several species of coral which include brain coral, black coral and staghorn coral. These are harvested by divers and used as ornaments and raw materials for jewellery and sold in souvenir shops.

If you have had the opportunity to go on a glass bottom boat or even a trip on the Atlantis submarine, you would have seen fish which come in all shades of the rainbow and the magnificent coral.

Coral reefs are beneficial to humans because they buffet coastal regions from strong waves and storms.

Civic minded groups in our island set out to clean the ocean floor, especially near the coral reefs which provide a haven for many plants and other sea creatures. When they have completed their tasks, tons and tons of debris are removed from the ocean floor. It is an embarrassment, especially when this is highlighted in our daily papers. It shows just how careless we are in our disposal of garbage and we need to take better care of our marine environment.

Dumping of garbage, sewage, fertilizers and chemicals in the ocean smothers coral and prevents them from obtaining enough sunlight and oxygen to survive. In addition to killing the coral, this toxic waste can also kill other marine flora and fauna.

Serious damage can also be caused to coral reefs through humans walking on or touching them and dropping their boat anchors on them.

The lives of sea turtles are also threatened by ocean debris as well. When turtles eat plastics and other garbage, they risk blockage to their digestive tracts which can cause them to suffocate and die.

FACTOID



When our National flag is flown with other flags it should be the first to be hoisted and the last to be lowered. It should never be lowered while the other flags are flying or being hoisted.



Celebrating Our Fishing Industry

Oistin's Fish Festival

The contribution of the many men and women who have significantly played a part in the fishing industry of Barbados has been the highlight of the Annual Oistin's Fish Festival.

This festival began in 1977 to showcase and inform Barbadians of the importance of the fishing industry to the country. It is held at Oistins, Christ Church, one of the leading fishing communities in the country. The festival is held every Easter weekend to celebrate and honour persons involved in every aspect of our local fishing industry. These persons include fishermen, fish vendors, fish cleaners and boat owners.

Many events and attractions are held which pay homage to fishing as an industry and the many aspects of getting the fish from the sea to our plates.

Competitions are held in fish boning, crab racing, conch shell blowing, tug-of-war, dolphin skinning, boat races and climbing the greasy pole. Thousands of persons including tourists visit Oistins on this weekend to enjoy these activities as well as flood light tattoo by the Barbados Royal Police Force Band, art and craft and other cultural activities.



Photograph by Elvis Bryan

Fisherman's Day Float

Fisherman's Day

Fisherman's Day is an annual festival and observation of the importance of the fishing industry to Barbados' economy and the livelihood of the many men and women who work in the industry. On the day set aside to recognize and celebrate these brave men and women who provide an essential service to our country, many activities are held. Fishing villages and sites across the island abound with activities and festivities. The slogan for this Year's (2010) Fisherman's Day was, 'A Fishing Line Keeps Us Off The Breadline'.

The many and varied activities for Fisherman's Day included organized activities where fisherfolk, their families, friends, customers and well-wishers enjoyed time together. The festivities began with a church service and other activities included discussions related to important issues in the fishing industry and other topics of interest, Customer Appreciation Day, cricket competitions, cultural performances and culminated with an Awards Ceremony at some of the Fishing Venues.

Many of the activities were organized by the Oistin's and Weston Fisherfolk .

FACTOID



The conch shell is blown by a fisherman to herald the start of the Oistin's Fish Festival.

Bajan Proverbs : Ask Granny

'De sea en' got nuh back door'

'Evuh day is fishing day, but evuh day en ketching day'



Conserving Fish and other Marine Life in our Waters

Dumping of waste, garbage, fertilizers, chemicals sewage and other pollutants in the ocean is a serious threat to our fishing industry and marine flora and fauna, as they smother coral, preventing them from getting enough sunlight and oxygen to survive, while depriving reef fish of healthy environments in which to live. Serious damage can also be caused to coral reefs through humans walking on or touching them and dropping their boat anchors on them.

Pollution of the ocean and the waters around our beautiful island can cause devastating economic consequences, not only for our fishermen and women but our tourist industry as well. We must remember that our economy depends on the tourist who visit to enjoy our sea and sand and the tranquility of our calm crystal clear waters and pristine beaches.

The future of our fishing industry and the general health of marine life rely on our ability to maintain our marine environment. Ocean dumping is a serious threat to marine life and it must be remembered that all of us - fishermen, sea bathers/goers, boaters, dive and water sports operators can play our part by being part of the solution, that is, disposing of our garbage appropriately when we go to the beach and never dumping garbage in the sea.

We must remember and take note that dumping of waste on the beaches or in the ocean leaves an unsightly mess which poses a danger to all marine life.

You should note that the lives of sea turtles are also threatened by ocean debris as well. When turtles eat plastics and other garbage, they risk blockage to their digestive tract which can cause them to suffocate and die.

The Barbados Marine Trust

The Barbados Marine Trust is a non-governmental organization which promotes proper management of marine resources to maintain a healthy and productive marine environment. This organization seeks to educate Barbadians about the importance and need for good management of marine resources and protection of our reefs, as this will ensure that the livelihood of our fishermen and women, our economy and our communities are sustained.

The Trust has as its motto "To preserve, protect and enhance Marine Life"

Do You Know?

- The white sea egg is biologically known as *Tripnustes esculentus* (Lesks).
- A group of turtles is called a bale.
- It is against the law to take turtle eggs or to capture turtles on shore or within 100 yards from shore.
- Aquaculture is the rearing or cultivation of aquatic animals or plants.
- Pelagics refer to fish which live in the upper layers(near the surface) of the open sea.
- Conchs are harvested in the waters around Barbados for their shells which are polished and sold by souvenir shops to tourists.
- The conch shell is blown by a fisherman to herald the start of the Oistins Fish Festival.
- Dolphins (mammal) communicate through sounds and whistles.
- Dolphins can stay up to ten to fifteen minutes under water but they cannot breathe under water.



ACTIVITY PAGES

ACTIVITY

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Answer the following questions

1. On what date was Fisherman's Day celebrated/observed this year?
2. What was the theme for this year's celebrations?
3. Which Government Ministry has the responsibility for fisheries?
4. What does the acronym BARNUFO mean?
5. Name the country with which Barbados established a maritime border in 2006.
6. Who is Barbados' Ambassador to CARICOM?
7. Research and write three paragraphs on :
 - a. Coastal Zone Management Unit
 - b. Barbados Sea Turtle Project
 - c. Barbados Marine Trust

ACTIVITY

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FISHING FOR WORDS

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

- | | |
|-------------|-----------|
| BAIT | LOBSTER |
| BONITO | MARINE |
| CORAL | MARKETS |
| DOLPHIN | REEF |
| FISHERMEN | RESOURCES |
| FISHING | SEAMOSS |
| FLYINGFISH | SEAURCHIN |
| GILLNET | SHARK |
| HAWKSBILL | SHELL |
| ICEBOAT | TRAWLERS |
| JETTY | TURTLES |
| KINGFISH | VENDORS |
| LEATHERBACK | |

ACTIVITY

10

ODD LOT

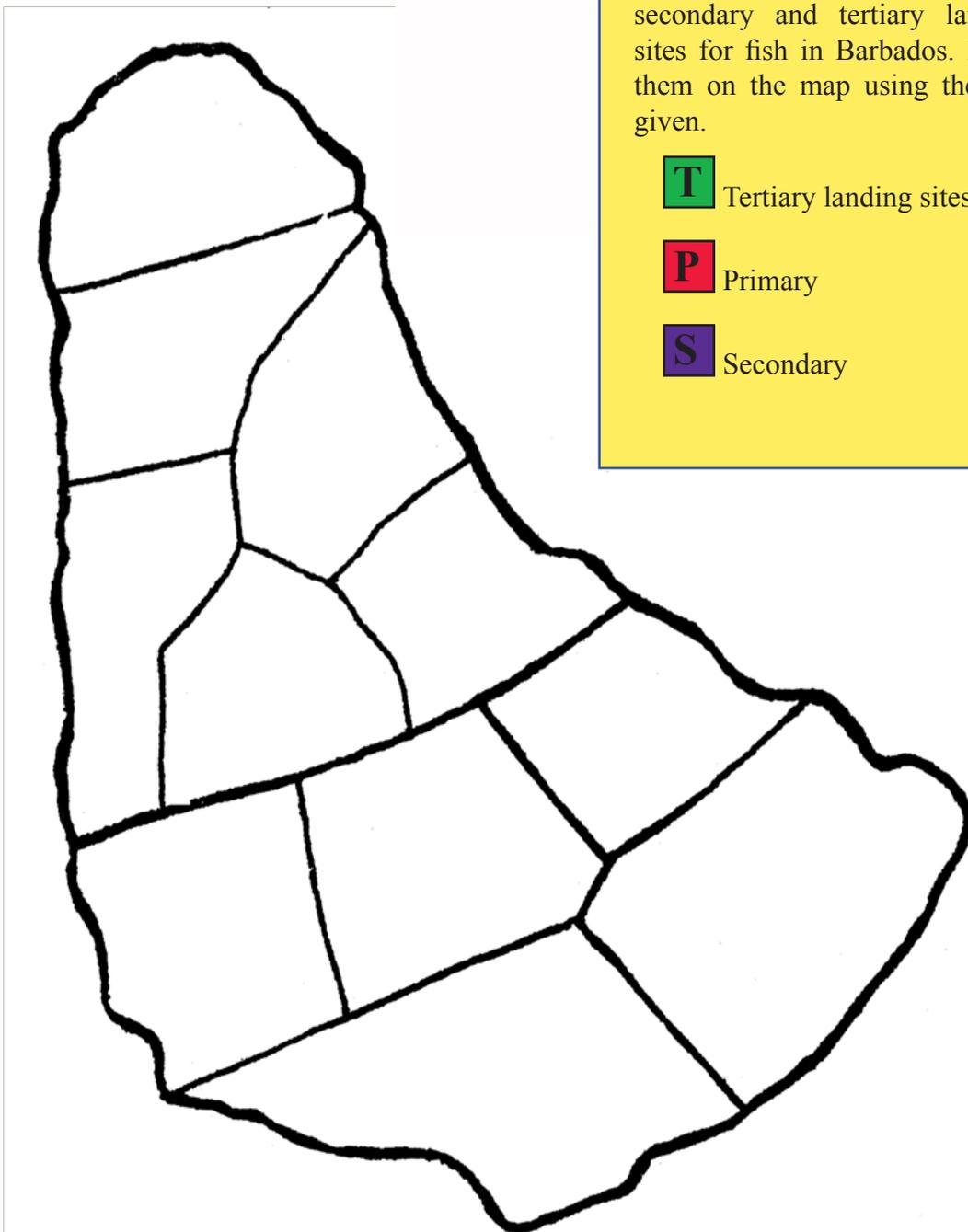
There are three words below that are the names of objects not found at the seaside. Rearrange the letters to find out what they are.

NUS, WOTLE, ARBC, SGAULEL,
 SEALNTDACS, DASN, TRIEG,
 AEPLP, IMCAERC, TNEOLIESVI



ACTIVITY

12



Research and list the primary, secondary and tertiary landing sites for fish in Barbados. Insert them on the map using the key given.

T Tertiary landing sites

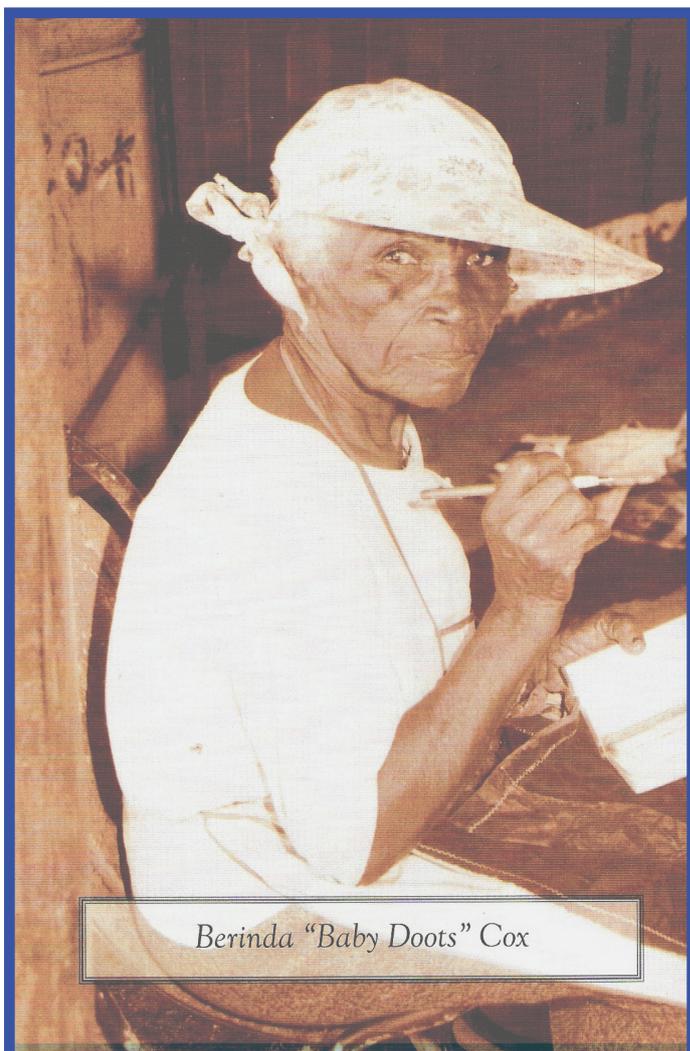
P Primary

S Secondary



Answers

- Activity 2
DOLPHINS, SHARK, TUNA, WHALE, GAR, SEALS,
DIVING, SWIMMING, WATER
- Activity 3
CRAB, SEAGULL, DOLPHIN, FLYING FISH,
TURTLE, CONCH SHELL
- Activity 4
OYSTER, OCTOPUS, SHELL, CRAB, SHARK,
JELLYFISH
- Activity 5
TOWELS, BEACHBALL, SUNCREAM,
SUNGLASSES, SANDALS, RADIO
- Activity 6
Shark, barracuda, dolphin, bonita, albacore, flyingfish
Activity 7
SUN...SUE...SEE...SEA
- Activity 8
SUN LOTION, SAND CASTLE, SEA WEED, SAIL,
BOAT, BEACH BALL, ICE CREAM, DECK CHAIR,
COCO NUT, STAR FISH, SUMMER HOLIDAY
- Activity 9
1. Tuesday June 29
2. 'A Fishing Line Keeps us off the Breadline'
3. The Ministry of Agriculture and Rural Development
4. Barbados National Union of Fishertfolk Organisation
5. Trinidad & Tobago
6. Mr. Dennis Kellman
- Activity 10
SUN, TOWEL, CRAB, SEAGULL, SANDCASTLE,
SAND, ICECREAM
The three odd objects are: TIGER, APPLE,
TELEVISION



Berinda "Baby Doots" Cox

WEB LINKS & RESOURCES:

- [http:// www.agriculture.gov.bb](http://www.agriculture.gov.bb)
- <http://www.fao.org/fi/oldsite/FCP/en/BRB/body.htm> Information on Fisheries Management in Barbados
- <http://bycatch.env.duke.edu/countries/barbados>
- The Fishing Industry of Barbados – Fisheries Division Ministry of Agriculture, Food and Fisheries: Compiled by Stephen Willoughby



Colour Me





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