



ANTIGUA AND BARBUDA'S PLAN OF ACTION



TO PREVENT, DETER AND ELIMINATE ILLEGAL, UNREPORTED AND UNREGULATED FISHING



Photo: Fisheries Division

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**Antigua and Barbuda's Plan of Action to Prevent, Deter and Eliminate
Illegal, Unreported and Unregulated Fishing**

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This document is one of the outputs of a series of consultation dating back as far as 2003, when Fisheries Division sought assistance from the Food and Agriculture Organization of the United Nation (FAO) with respect to bringing the *Fisheries Act (1983)* and *Fisheries Regulations (1990)*, in line with current development in international fisheries law and related environmental agreements. A two-day national consultation was held in May 2004, to present and discuss the draft new and amended fisheries legislation. The issue of illegal, unreported and unregulated fishing was one of the issues brought to the fore-front during this consultation. In June 2009, during the National Fisheries Symposium, a Draft National Plan of Action to Address Illegal, Unreported and Unregulated Fishing was presented to fisheries' stakeholders for feedback. In attendance were representative from the following organisations: Antigua & Barbuda Fishermen Co-operative Society Ltd., Caribbean Network of Fisherfolk Organisations – Coordinating Unit, Antigua & Barbuda Sport Fishing Association, Barbuda Council Fisheries Department, Antigua & Barbuda Defence Force Coast Guard, Antigua & Barbuda Search & Rescue, Antigua Fisheries Limited, Antigua & Barbuda Development Bank, National Development Foundation, State Insurance Corporation, and other stakeholders including local exporters. In November 2009, a final consultation was held with a fisheries' focus group to finalise the Draft National Plan of Action to Address Illegal, Unreported and Unregulated Fishing and the draft fisheries regulations. The Fisheries Division would like to thank the various stakeholders for their valuable input into this document. Special thanks to: Mr. Bisessar Chakalall, FAO Senior Fishery Officer, Mr. Henning Teigene and Mr. Blaise Kuemlangan, FAO Legal Officers, for facilitating the review and update of the fisheries legislation; Mr. Mitchell Lay, Coordinator of the Caribbean Network of Fisherfolk Organisations – Coordinating Unit, for chairing a number of the consultations; Mr. Jameson “Kublai” Mannix of the South Coast United Fisherfolk Cooperative; Lieutenant (N) Elroy Skerritt of the Antigua & Barbuda Defence Force Coast Guard, for his input regarding maritime security; and current and former presidents of the Antigua & Barbuda Fishermen Co-operative Society Ltd., Mr. Sibly Charles and Mr. Julian DeCastro.

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ACRONYMS AND ABBREVIATIONS

ABSAR	Antigua and Barbuda Search and Rescue
CARICOM	Caribbean Community
CIDA	Canadian International Development Agency
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
COFI	Committee on Fisheries (FAO)
CRFM	Caribbean Regional Fisheries Mechanism
DFID	United Kingdom's Department for International Development
EAG	Environmental Awareness Group
EC\$	Eastern Caribbean Dollar; US\$1 = EC\$2.70
EEZ	Exclusive Economic Zone
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
GDP	Gross Domestic Product
GPS	Global Positioning System
HACCP	Hazard Analysis Critical Control Points
ICCAT	International Commission for the Conservation of Atlantic Tunas
IOI	International Ocean Institute
IPOA-IUU	International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing
IUU Fishing	Illegal, Unreported and Unregulated Fishing
JICA	Japan International Cooperation Agency
NGO	Non-governmental Organisation
NPOA-IUU	National Plan of Action to Prevent, Deter and Eliminate IUU Fishing
OECS	Organisation of Eastern Caribbean States
OECS-ESDU	Environment and Sustainable Development Unit of the Organisation of Eastern Caribbean States
SGD	St. George's Declaration of Principles for Environmental Sustainability in the OECS
WECAFC	Western Central Atlantic Fishery Commission (FAO)



Photo: Fisheries Division



Photo: Fisheries Division

National Fisheries Symposium held at the Point Wharf Fisheries Complex in June 2009.



Photo: Fisheries Division



Photo: Fisheries Division

Two-day national consultation on the draft new and amended fisheries legislation held at the Multi-Purpose Cultural & Exhibition Center in May 2004.

INTRODUCTION

Purpose and Scope

The purpose of this document is: 1) to elucidate Antigua and Barbuda's plan of action to prevent, deter, and eliminate illegal, unreported and unregulated (IUU) fishing; 2) to provide a status report on the nature and extent of IUU fishing with respect to Antigua and Barbuda; 3) to provide an account of the current policies and legislation relating to this problem; and 4) to identify ongoing strategies and programmes to address it.

According to the *International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing* (IPOA-IUU), developed by the Food and Agriculture Organization of the United Nations (FAO, 2001):

Illegal fishing refers to activities:

- conducted by national or foreign vessels in waters under the jurisdiction of a State, without the permission of that State, or in contravention of its laws and regulations;
- conducted by vessels flying the flag of States that are parties to a relevant regional fisheries management organization but operate in contravention of the conservation and management measures adopted by that organization and by which the States are bound, or relevant provisions of the applicable international law; or
- in violation of national laws or international obligations, including those undertaken by cooperating States to a relevant fisheries management organization.

Unreported fishing refers to activities:

- which have not been reported, or have been misreported, to the relevant national authority, in contravention of national laws and regulations; or
- undertaken in the area of competence of a relevant regional fisheries management organization which have not been reported or have been misreported, in contravention of the reporting procedures of that organization.

Unregulated fishing refers to activities:

- in the area of application of a relevant regional fisheries management organization that are conducted by vessels without nationality, or by those flying the flag of a State not party to that organization, or by a fishing entity, in a manner that is not consistent with or contravenes the conservation and management measures of that organization; or
- in areas or for fish stocks in relation to which there are no applicable conservation or management measures and where such fishing activities are conducted in a manner inconsistent with State responsibilities for conservation of living marine resources under international law.

Within the fore mentioned context and definition of IUU fishing, this document is Antigua and Barbuda's initial attempt at a *comprehensive* and *integrated approach* towards preventing, deterring, and eliminating IUU fishing. While the IPOA-IUU provides a model structure for countries to develop their National Plan of Action to Prevent, Deter and Eliminate IUU Fishing (NPOA-IUU), the structure and focus of this document is influenced by:

- I. the nature of Antigua and Barbuda's fisheries:
 - Vessels fish within the Exclusive Economic Zone (more specifically the Territorial Sea); in 2008, 99% of the active fishing fleet was less than 50 feet in length.
 - Antigua and Barbuda does not have a home based high seas fishing fleet and offers extremely limited port State services to foreign fishing vessels (mainly sport fishing vessels from neighbouring islands that participate in the annual fishing tournaments).
 - It is the policy of the Government of Antigua and Barbuda not to flag foreign fishing vessels; this is due to the fact that the legislative framework and infrastructure for regulating high seas fishing activities is not yet in place (draft high seas fishing legislation have been developed by FAO as part of a legislative review in 2003).
- II. the nature and extent of IUU fishing under Antigua and Barbuda's jurisdiction.
- III. the appeal of fisheries' stakeholders for stronger action to be taken against individuals who breach local conservation measures.
- IV. a recognition of the fact that participation of the sector is crucial towards effectively addressing IUU fishing since in most cases fishers are the main reporters of alleged violations.

The document therefore focuses on the priority areas of IUU fishing under Antigua and Barbuda's jurisdiction, and takes a *targeted approach* towards assessment of the performance of the sector (including the management authority, the Fisheries Division) in addressing IUU fishing. This approach ensures *greater transparency* and *accountability* by all stakeholders. Article 6.13 of the *FAO Code of Conduct for Responsible Fisheries*, declares:

States should, to the extent permitted by national laws and regulations, ensure that decision making processes are transparent and achieve timely solutions to urgent matters....

Global View of IUU Fishing

According to *The State of World Fisheries and Aquaculture* (FAO, 2000), in some important fisheries, IUU fishing accounted for up to 30% of total catches, and in one case IUU catches could be as high as three times the permitted catch level. The report also highlighted that IUU fishing was a major fisheries management issue because of its far-reaching consequences with respect to long term sustainability of fisheries resources and

that it occurred in all capture fisheries, irrespective of the location, species targeted, fishing gear employed or level and intensity of exploitation. In severe cases, IUU fishing could lead to the collapse of a fishery or seriously affect efforts to rebuild fishery resources that have been depleted.

The actual magnitude of global IUU fishing is unknown. Pauly and Maclean (2003), however, estimated that unreported catch as a proportion of total global reported catch was in the range of 25-30%. A report prepared for the United Kingdom's Department for International Development (DFID), indicated that for sub-Saharan Africa the estimated value of IUU catch was 16% of the total catch value for that region or 19% of the declared catch (Marine Resources Assessment Group Ltd, 2005). These estimates may represent an overestimation of the magnitude of IUU fishing based on the fact that reported data often only included estimates from fisheries where there are some detectable IUU catch, but not from fisheries or countries where IUU fishing is low or close to zero. While this may be the case, the problem of IUU fishing has to be viewed within the broader context of the status of global fishery resources. According to FAO (2008), in 2007, 80% of the world fish stocks were fully exploited, overexploited, depleted or recovering from depletion. Within this context, IUU fishing represents a grave threat to the sustainability of global fishery resources.

Measures Taken by the International Community

FAO International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (IPOA-IUU) was developed as a voluntary instrument, within the framework of the *FAO Code of Conduct for Responsible Fisheries*, and its overall objectives of sustainable fisheries. Although the IPOA-IUU is voluntary, many of the provisions are enshrined in other binding instruments such as *1982 United Nations Convention on the Law of the Sea*, the *1993 FAO Compliance Agreement* and the *1995 United Nations Fish Stock Agreement*.

The IPOA-IUU was adopted in March 2001 by the FAO Committee on Fisheries (COFI) and endorsed by the FAO Council in June 2001. The IPOA-IUU provides a “toolbox” of measures to prevent, deter and eliminate IUU fishing. The “tools” employed focus on:

- all state responsibilities,
- flag state responsibilities,
- coastal state measures,
- port state measures,
- international agreed market-related measures,
- research and regional fisheries management organizations.

The 2002 World Summit on Sustainable Development reaffirmed to put the IPOA-IUU into effect by June 2004.

In November 2009, the *FAO Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing* was approved by FAO governing

Conference. The Agreement aims at closing fishing ports to vessels involved in IUU fishing, thereby restricting the flow of fish from such vessels, into international markets. Once it enters into force, upon ratification by 25 countries, it will be the first legally binding agreement exclusively dealing with IUU fishing. To-date eleven FAO Member States have already signed the Agreement.

Antigua and Barbuda's Fisheries Sector

Antigua and Barbuda established itself as an archipelagic state in 1982 with a 12 nautical mile territorial sea, an Exclusive Economic Zone (EEZ) and a Fishery Zone of 200 nautical miles. The full extent of the EEZ is unknown since negotiations with neighbouring states have not been completed.

It is estimated that Antigua and Barbuda has a total shelf area of 3,568 kilometres². This includes the Antigua and Barbuda shelf (3,400 km²), South Bank (40 km²), a section of Anguilla shelf (7 km²), Redonda shelf (98 km²), Havers Shoal (5 km²) and a section of St. Christopher and Nevis shelf (18 km²). The Antigua and Barbuda shelf that both islands emerge from is one of the largest in the Eastern Caribbean. These relatively extensive fishing grounds support a substantial demersal resource of reef fish, Gastropoda (e.g., Queen conch) and Crustacea (e.g., Caribbean spiny lobster). Based on the most conservative of estimates from various sources including the Fisheries Division, these resources could provide an annual sustainable yield of between 3,409 and 6,585 tonnes. Current production is line with the fore mentioned maximum sustainable yield estimates; in 2008, the demersal resource yielded 3,357 tonnes and accounted for 93% of the total ex-vessel value of production (EC\$49.22 million). For the same period, the fisheries sector contributed to 52% of the agricultural GDP of EC\$83.46 million or 2% of the national GDP (in current prices).

In addition to these demersal resources, seasonal large pelagic species, (e.g., tunas, dolphinfishes, wahoos and billfishes) pass through the waters of Antigua and Barbuda. Preliminary estimates indicate that these migratory fish could yield an additional 3-4,000 tonnes annually. Even though the extent of these resources is not fully known, the consensus of opinion is that most are not fully utilised. In 2008, production of large pelagics was estimated at 103 tonnes. The large pelagics not only offer great potential for the expansion of the capture fishery but also the sport fishing or recreational fishery. There are about 40 private sport fishing vessels operating in Antigua and Barbuda, including 10 commercial charters. The Antigua and Barbuda Sport Fishing Association sponsors an international billfish tournament annually, which attracts about 30 to 40 entrants from neighbouring islands. To-date no valuation of the contribution of the sport fishery has been conducted.

At the end of 2008, there were 1,335 registered fishers engaged in the sector, with 632 (approximately 47%) classified as full-time. Of the registered fishers, 872 were actively fishing, which is about 2% of the national labour force. An addition 50 individuals are employed in an underdeveloped processing sector. The high energy cost associated with

processing and storage, and inadequate access to capital has curtailed the development of this area. In terms of employment, values should be taken as conservative estimates since the fisheries sector acts as a “safety-net” for other economic activities (i.e., a large proportion of fishers are also employed in the construction and tourism sectors), hence downturns in these areas of employment can impact on fishing effort. For this reason, the Fisheries Division is looking at schemes for limited fishing effort to ensure the long term sustainability of fishery resources. In terms of level of dependency on fishing, the community of Codrington, Barbuda, has the highest, with 1 in every 4 persons economically supported by the export-oriented spiny lobster fishery.

Over the past 35 years, the fishing fleet of Antigua and Barbuda has undergone significant modernisation. Most of the wooden sloops and dories that dominated the sector in the 1970s have been gradually replaced by modern fibreglass launches and pirogues with the latest fishing equipment (global positioning system, depth sounder, etc) (Figures 1 and 2). While there have been significant improvements, in terms of vessel construction and fishing technology, traps or “fish pot” used to target the demersals remain the dominant gear due to the extensive nature of the island shelf. In 2008, trap-fishing vessels comprised 42% of the active fishing fleet of 382 vessels. A typical investment, including vessel, gear and equipment, ranges from EC\$45,000 for a 22-foot fibreglass pirogue to EC\$210,000 for a 38-foot fibreglass launch.

In terms of exports, the contribution of the fisheries sector to foreign exchange earnings has decreased significantly since the formation of the single European market on January 1993, when legislation governing the production of food were harmonised throughout the European Community. The key to European Food Law is the principle of quality management and process-oriented control throughout the production chain (from fishing vessel to the consumer’s table). The stringent technical standards, the need for accompanying legislation and infrastructure, make the process an arduous task for most developing countries. These changes have drastically affected the export sector. In 1990, domestic export of seafood from Antigua and Barbuda was 183 metric tons and valued locally at EC\$3.0 million. This has decreased to 126 metric tons or EC\$2.1 million, in 2007 (based on constant 1990 prices). Despite the decline in exports, the European Union remains the main market, with as much as 84% of the lobsters landed in Barbuda being shipped to the French territories in the region.



Photo: Fisheries Division

Figure 1. Typical fishing unit in Antigua and Barbuda.



Photo: I. Horsford

Figure 2. Traditional (left) and modern (right) trap-fishing launches.

INSTITUTIONAL FRAMEWORK

Governmental Agencies

The Fisheries Division within the Ministry of Agriculture, Lands, Housing and the Environment is the lead governmental agency responsible for fisheries management and development. The Division is headed by the Chief Fisheries Officer, who reports directly to the Permanent Secretary, Ministry of Agriculture. The mission of the Fisheries Division is:

To ensure that development in the fisheries sector occurs in a manner which is sustainable and capable of contributing its full potential to the overall development of the national economy.

Whilst the Fisheries Division is the primary management authority, the *Barbuda Local Government Act (1976)*, gives the local council of the island of Barbuda, authority to manage its fisheries. Barbuda Fisheries is the implementing arm of the local council. The *Fisheries Act, No.14 of 1983*, which provides for the management and development of fisheries, also makes provision for the designation of local fisheries management authority.

In terms of monitoring, control, surveillance and enforcement, the Fisheries Division collaborates with the Antigua and Barbuda Defence Force Coast Guard and the Royal Police Force of Antigua and Barbuda. In addition to enforcing domestic fisheries regulations and patrolling EEZ waters, the Defence Force Coast Guard participates in search and rescue as well as assists the Fisheries Division, with respect to inspecting fishing vessels, environmental monitoring and training of fishers in areas such as vessel safety, navigation, and engine repairs. The Royal Police Force assists with the enforcement of fisheries regulations pertaining to land based activities.

Other governmental agencies that collaborate with the Fisheries Division include:

- the Department of Marine Services and Merchant Shipping – which provides technical support in the area of vessel inspection and marine survey, where necessary.
- the Environment Division – which is the local management authority responsible for implementing the provisions of the *Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)*; Antigua and Barbuda acceded to the Convention in 1997 and international trade in Queen conch (*Strombus gigas*) and other endangered marine species are governed by the Convention.
- the Central Board of Health – assist in the area of water quality monitoring, seafood safety and quality assurance.
- the Customs and Excise Division – is responsible for controlling the flow of trade in fish and fishery products.

Fisherfolk Organisations

The Fisheries Division recognises that stakeholder participation in fisheries management decisions can lead to: increase understanding of management decisions; improve compliance by user groups; mitigate user conflicts; improve relationship with stakeholders; and increase effectiveness of fisheries governance. For these reasons, the Fisheries Division proactively consults with stakeholders and encourages the development of fisherfolk organisations, despite limited success in the past. This is partly due to the “independent nature” of fishers as well as a general feeling of mistrust among individuals due to issues related to IUU fishing (e.g., piracy of fish traps, theft of fishing equipment and gear). There are currently four fisherfolk organisations functioning in Antigua and Barbuda:

- Antigua and Barbuda Fishermen Co-operative Society Ltd. (formerly the St. John's Fishermen Co-operative Society Ltd).
- Antigua and Barbuda Sport Fishing Association – the body representing pelagic sport fishers.
- Antigua and Barbuda Fisheries Alliance Inc. – basically an umbrella organisation that deals with major issues affecting the sector.
- South Coast United Fisherfolk Cooperative – is a fledgling organisation that represents the interests of fishers from Antigua's south coast.

Provisions for stakeholder participation are enshrined in the fisheries management decision-making process. The *Fisheries Act, No.14 of 1983*, requires the Chief Fisheries Officer to consult with stakeholders in the preparation and review of fisheries management and development plan. The Act and Regulations also make provisions for an eight-member Fisheries Advisory Committee, of which three persons shall be nominated by professional fishers. A new Fisheries Advisory Committee is in the process of being constituted.

Non-governmental Organisations

The Fisheries Division collaborates with the Environmental Awareness Group (EAG) on matters pertaining to fisheries management, conservation and environmental education. The Environmental Awareness Group is a voluntary, not-for-profit, non-governmental organisation formed in 1989 to promote public awareness for support of conservation initiatives.

The Fisheries Division also collaborates with Antigua and Barbuda Search and Rescue (ABSAR), a voluntary organisation dedicated to saving lives in Antigua and Barbuda and the surrounding waters. ABSAR has provided assistance to the fisheries sector in the area of search and rescue as well as donating safety equipment.

Regional and International Agencies

Regarding the role of regional and international institutions:

- the Environment and Sustainable Development Unit of the Organisation of Eastern Caribbean States (OECS-ESDU) is the entity within the OECS Secretariat that is responsible for the provision of natural resource and environmental management services to the member states of the OECS (including Antigua and Barbuda).
- the Caribbean Regional Fisheries Mechanism (CRFM) is an intergovernmental organisation that provides technical support on various aspects of fisheries management to the Caribbean Community (CARICOM), including Antigua and Barbuda. Three bodies make up the Mechanism: a Ministerial Council; a Fisheries Forum (a technical and scientific advisory body to the Ministerial Council); and a Fisheries Technical Unit or Secretariat.
- the Food and Agriculture Organization of the United Nations (FAO) provides technical assistance and facilitates fisheries management consultation at the regional level mainly through the FAO Western Central Atlantic Fishery Commission (WECAFC).
- the Japan International Cooperation Agency (JICA), an independent governmental agency that coordinates official development assistance for the government of Japan, has provided technical support through the long term attachment of a fisheries expert as well as grant aid with respect to basic fisheries infrastructure (cold storage, ice making facilities, etc).
- the International Commission for the Conservation of Atlantic Tunas (ICCAT) is an intergovernmental fishery organisation responsible for the conservation of tunas and tuna-like species in the Atlantic Ocean and adjacent seas. Antigua and Barbuda is not a contracting party.

CURRENT LEGISLATIVE FRAMEWORK

The *Fisheries Act, No.14 of 1983* and the *Fisheries Regulations, No.10 of 1990*, are the primary legislative basis for fisheries management and development. The Act applies to: an Exclusive Economic Zone (EEZ) and a fisheries zone (of 200 nautical miles); a territorial sea (of 12 nautical miles); archipelagic waters and internal waters as defined in the *Territorial Waters Act (1982)* and any other waters over which Antigua and Barbuda claims fisheries jurisdiction. As noted previously, the full extent of the EEZ is unknown since negotiations with neighbouring States have yet to be completed.

The Act and Regulations make provision for: the establishment of a Fisheries Advisory Committee; fisheries access agreements; fishing licensing (local and foreign); fisheries research; fish processing establishments; and fisheries enforcement. Also conservation measures such as: prohibiting the use of certain fishing methods; gear and species-size restrictions; close seasons; and the creation of marine reserves. Under the Act, the Minister responsible for Fisheries has the authority to create new regulations for management and conservation as and when necessary.

The Act also makes provisions for the State to take action against citizens of Antigua and Barbuda that are involved in IUU fishing outside Antigua and Barbuda waters. Section 37 of the *Fisheries Act, No.14 of 1983*, states:

Any offence against any of the provisions of this Act or any regulations made under this Act committed within Antigua and Barbuda waters by any person, or any such offence committed outside such waters by any citizen of or person ordinarily resident in Antigua and Barbuda or by any person on board any local vessel, shall be triable in any court of Antigua and Barbuda as if such offence has been committed in Antigua and Barbuda within local limits of the jurisdiction of such court.

Other fisheries-related legislation include:

- the *Barbuda Local Government Act (1976)* – which gives the Barbuda Council (local governing body of no less than nine elected and two *ex officio* members) authority over its fisheries including the right to retain taxes on exported seafood;
- the *National Parks Act (1984)* – for the designation of any land area or water as a national park;
- the *Marine Areas (Preservation and Enhancement) Act (1972)* – for the declaration of marine protected areas;
- the *Beach Control Ordinance (1991)* – for the control of sand mining; and
- the *Antigua and Barbuda Merchant Shipping Act (2006)* – for inspection of certain classes of vessels required under the laws governing merchant shipping.

The *Ratification of Treaties Act of 1987* requires most conventions, specifically those potentially affecting national security, sovereignty or relationships with international organisations / agencies to receive Parliamentary approval through resolution or implementing legislation, before the Minister of Foreign Affairs may deposit an instrument of formal acceptance.

In terms of regional environmental initiatives, member states of the Organisation of the Eastern Caribbean States (OECS) – including Antigua and Barbuda – committed themselves to a *sustainable approach* to the development of their economies. The *St. George's Declaration of Principles for Environmental Sustainability in the OECS* (SGD) was signed by the OECS Ministers of Environment in April 2001. The Declaration, which is based on the *Barbados Programme of Action for the Sustainable Development of Small Island Developing States*, sets out 21 principles for environmental sustainability in the OECS region.

PROPOSED LEGISLATIVE FRAMEWORK

In 2003, the Fisheries Division sought assistance from the Food and Agriculture Organization of the United Nations (FAO), with respect to bring the *Fisheries Act (1983)* and the *Fisheries Regulations (1990)*, in line with development in current international fisheries law and related environmental agreements. The following draft legislation were produced:

- Draft amended Fisheries Act;
- Draft amended Fisheries Regulations;
- Draft Seafood Regulations;
- Draft Live Lobster Standards;
- Draft High Seas Fishing Act and
- Draft High Seas Fishing Regulations.

Consultation with relevant government authorities and stakeholders on the draft legislation took place in May 2004. The *Fisheries Act, No. 22 of 2006*, was passed in the Lower and Upper House of Parliament and is currently awaiting a date of enactment.

In terms of overall evolution of the fisheries legislation, there has been a shift in paradigm from “*optimal utilisation*” towards a more “*holistic and sustainable approach*” regarding fisheries management. “*Ecosystem based approaches*” to fisheries management and the “*precautionary principle*” are the cornerstones of the *Fisheries Act (2006)* and the pending draft legislation. The precautionary approach is set out in the *FAO Code of Conduct for Responsible Fisheries* (Articles 6.5 and 7.5) and the *1995 United Nations Fish Stock Agreement* (Article 6 and Annex II).

The Fisheries Division is in the final stage of updating the fisheries regulations, which improves on the current 1990 regulations, by transitioning the sector from an “*open access*” to “*limited entry*” management regime through the use of special permits for certain fishery resources (e.g., Caribbean spiny lobster and Queen conch). Other improvements in the proposed fisheries regulations include:

- legal requirement for representation by the Barbuda Council on the Fisheries Advisory Committee;
- legal requirement for record of local fishers;
- provisions for suspension and revocation of local fisher licence;
- legal requirement for registration of fishing vessels;
- provisions for introduction of non indigenous fish and import of live aquatic organisms;
- provisions for marking of fishing gear;
- new and amended gear specifications;
- provisions for designation of landing sites; and
- revision of maximum fines.

The Draft High Seas Fishing Act and Regulations intend to:

- establish a system for the regulation of fishing vessels of Antigua and Barbuda operating outside areas under national jurisdiction;
- implement the Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (*1993 FAO Compliance Agreement*) ; and
- implement the Agreement for the Implementation of the United Nations Convention on the Law of the Sea relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (*1995 United Nations Fish Stock Agreement*).

STATUS OF IUU FISHING AND ACTIONS TAKEN

Fisheries Research and Monitoring

The following programmes are used to:

- assess the status of fisheries (including fishery resources and socio-economics);
- monitor the level of compliance regarding fisheries legislation; and
- guide fisheries management (including monitoring, control, surveillance and enforcement) as well as development strategies.

The Licensing and Registration Programme captures baseline socio-economic data on fishers as well as technological features of the fishing fleet. The registration component allows for the estimation of the potential fishing effort within the country while the licensing component provides an estimation of the actual fishing effort currently utilised. Despite the fore mentioned, the *Vessel Frame Survey 2001* (Horsford, 2004a), indicated that the number of licensed vessels is not a “good indicator” of the actual fishing effort. This was attributed to the low level of compliance with respect to licensing of local fishing vessels (58%) and the fact that the fisheries sector acts as a “safety net” for other economic activities employed by fishers (mainly employment in the tourism and construction sectors); hence level of fishing activity varies depending on upturn or downturn in the related sectors. In 2008, at least 36% of the registered fishers were either part-time or occasional fishers.

To improve monitoring of actual fishing effort and level of compliance regarding local licence, a census of the number of active fishing vessels is conducted annually since 2001. This has improved the accuracy of various annual fisheries statistics (capture production, contribution to gross domestic product, level of employment, etc).

The Catch and Effort Data Collection Programme captures data pertaining to fishing vessels’ trips (total catch, species composition, fishing effort, crew size, trip expenditure, etc) while the Biological Data Collection Programme captures data on the fishery resources (size, sex, maturity, etc). Both programmes are used to monitor various trends in the fisheries such as mean catch per unit effort, mean size landed and level of compliance with conservation measures.

Since 2001, the Fisheries Division has maintained a database of violations of the fisheries legislation to:

- improve overall monitoring of IUU fishing;
- readily identify repeat offenders;
- track changes in the types of violations;
- geo-reference “hot spots” for IUU fishing; and
- guide monitoring, control, surveillance and enforcement strategies.

Maritime Surveillance and Enforcement Assets

The Antigua and Barbuda Defence Force Coast Guard provides the primary physical maritime assets for fisheries surveillance and enforcement. The flotilla, the operational part of the Coast Guard, consists of six vessels, namely the *CGC Liberta*, *UB Palmetto*, two Boston Whalers and two Zodiac Hurricanes (Rigid Hull Inflatable Boats). The *CGC Liberta* (Figure 3), the Coast Guard's flag ship is a 65-foot aluminium hull cutter that carries a complement of 10 individuals while the *UB Palmetto* is a 40-foot utility boat that was provided as a gift from the United States of America. This mixture of long range, medium range and coastal interceptor provides some level of versatility to deal with the challenges involved in fisheries enforcement and search and rescue.

The Fisheries Division also have four vessels ranging from a 26-foot Boston Whaler to a 14-foot open fibreglass vessel, most of which are used primarily for fisheries research and monitoring.



Figure 3. The *CGC Liberta*, the Antigua and Barbuda Defence Force Coast Guard's flag ship.

Working Relationship regarding Enforcement

It is standard practice for the Fisheries Division to schedule joint patrols with the Antigua and Barbuda Defence Force Coast Guard because of the various issues (sometimes overlapping) affecting maritime security and the serious nature of these issues (trafficking of narcotics, illegal firearms, etc). The Coast Guard also conduct separate,

dedicated fisheries patrols and routine patrols. If a violation or undesirable situation is detected, the Coast Guard would note the information and / or take the necessary law enforcement action, which include detention of property and / or the perpetrators and refer the case to the Fisheries Division for further pursuance of the case through the administrative or legal system. This strategy unfetters the Coast Guard to conduct further operational missions within Antigua and Barbuda's waters. In addition to fisheries officers and personnel of the Antigua and Barbuda Defence Force, officers of the following entities: Customs and Excise Division and the Royal Police Force of Antigua and Barbuda, have enforcement powers under the *Fisheries Act (1983)*. Under Section 26 of the Act, the Minister may designate any other person or category of persons as an authorised officer including members of the enforcement authority of any country or of any regional or sub regional marine enforcement entity.

In 1991, signing of the Organisation of Eastern Caribbean States (OECS) *Agreement Establishing Common Fisheries Surveillance Zones* improved sub regional cooperation between member states. This Agreement was aimed at rationalising the deployment of coast guard and / or marine units at the national and sub regional levels. The Agreement also allowed for the arrest for fishing violations in any of the waters under the jurisdiction of an OECS member state. Joint air and sea surveillance exercises were conducted annually (in the case of Antigua and Barbuda typically with the member states of St. Christopher [St. Kitts] & Nevis and Montserrat). These missions were coordinated by the now defunct OECS Fisheries Unit. While the missions lead to several arrests of illegal foreign fishing vessels, limitations in the endurance of surveillance due to high cost and the geographical composition of the region, hindered the long term sustainability of the joint air and sea surveillance exercises and ultimately the success of the sub regional initiative. For these reasons, the Agreement was never fully implemented as the OECS Heads of Government (Prime Ministers and Chief Ministers) agreed.

Fisheries Prosecution and Ocean Governance Training

In 1997, the Organisation of Eastern Caribbean States (OECS) in collaboration with the Canadian International Development Agency (CIDA) organised a series of fisheries prosecution workshops with the goal of supporting the development of a harmonised sub regional framework for the enforcement of fisheries legislation among OECS member states (including Antigua and Barbuda). The workshops focused on enhancing the enforcement capacity of member states by providing enforcement officers and court officials with a better understanding of the scientific, technical and legal issues concerning fisheries and maritime laws in addition to the use of technology in gathering evidence. As a follow-up project, a *Fisheries Prosecution Manual* and a *Standard Operating Procedures Manual for Fisheries Enforcement* were developed and put into operation since 1998. These manuals form the basis for training for fisheries personnel and coast guard recruits.

The Canadian Operational Centre of the International Ocean Institute (IOI), an international, non governmental, non profit organisation, has provided training in *Ocean*

Governance: Policy, Law and Management, to most of the senior fisheries and coast guard personnel. The training programme is interdisciplinary in nature and covers various aspects of ocean governance including the United Nations Convention on the Law of the Sea, Integrated Coastal and Ocean Management, Marine Security, etc.

Critical Issues Affecting Monitoring, Control, Surveillance and Enforcement

Critical issues affecting fisheries monitoring, control, surveillance and enforcement include:

- The expansive nature of Antigua and Barbuda shelf and more critically Antigua and Barbuda's declared Exclusive Economic Zone (EEZ) (Figure 4). In 2008, Antigua and Barbuda had a population of 87,506 residing on a land area of 442.6 km², with a proposed EEZ of 110,089 km² (Sea Around Us, 2010). Antigua and Barbuda's marine jurisdiction is therefore 249 times larger than its land mass. With an active fishing fleet in 2008 of 382 vessels, this is approximately 288 km² of fishing area per vessel.
- Antigua's deeply indented coastline with numerous bays and coves. This is further complicated by the fact that the port of operation for many fishing vessels differs from the port of landing.
- A shortage of appropriate sea and air surveillance assets; given the expansive nature of the EEZ, current Coast Guard assets (a flotilla of six vessels) is inadequate to cover an area of 110,089 km². The absence of a coast guard station on the island of Barbuda has impacted on response time in the case of search and rescue or enforcement activities.
- Delimitation of maritime boundaries, especially EEZ is not complete. For Antigua and Barbuda, negotiations are still ongoing with: St. Christopher (St. Kitts) and Nevis; France with respect to Guadeloupe, St. Barthelemy and St. Martin; and United Kingdom with respect to Anguilla and Montserrat (Figure 4).
- A shortage of trained or educated personnel in areas such as maritime law, marine technology, seamanship, marine surveying, engineering, etc.
- The small or artisanal nature of the fisheries limits the development of "economies of scale" essential towards justifying satisfactory allocation of resources for fisheries surveillance and enforcement; fisheries surveillance and enforcement (and ultimately fisheries management) must be cost-effective.
- The multiple roles of agencies and personnel have impacted on fisheries surveillance and enforcement commitments. For example, the Coast Guard also have responsibilities related to harbour security and safety; customs and immigrations; search and rescue; marine safety inspections; environmental pollution protection; narcotics interdictions; weather broadcast and navigation warnings; and nation building. Similarly the Fisheries Division has obligations for marine pollution, seafood safety and quality assurance, beach and wetland monitoring, review of environmental impact assessments and marine research proposals in addition to fisheries management.

- The increasing number of cases where fishing or trade in fish and fisheries products is used as a ruse for criminal activity (more specially drug trafficking).
- Government austerity measures, such as fuel rationing for vehicles and freeze on filling certain vacant positions, have impacted on the fisheries data collection and monitoring programmes. These measures were taken in a bid to align government's revenue collection with expenditure.
- Completion of fisheries legislative reform; as mentioned previously FAO sponsored a comprehensive review in 2003. The primary legislation, the *Fisheries Act, No. 22 of 2006*, was passed and should be enacted, along with the draft amended regulations in 2010. The Draft High Seas Fishing Act should be placed before the legislative body in 2011. Legislative review of the *Evidence Act*, the *Evidence (Amendment) Act, 2009*, and related legislation (e.g., the *Evidence [Special Provisions] Act, 2009*) is required to ensure legal provisions for evidence from modern technologies such as vessel monitoring systems (VMS), digital photographs and other surveillance technologies.

An emerging issue is the impact of Antigua and Barbuda's "liberal immigration policy" on the fisheries sector. The fisheries sector has benefited socially, economically and culturally from the contributions of immigrants whether through filling a "labour vacuum" created by the dominance of the tourism and construction sectors or through the introduction of new fishing methods (e.g., "palang"). With these benefits have come new challenges such as increased discord between natives and immigrants regarding rights to fish, introduction of undesired fishing methods or gears (this is reflected in the new list of prohibited methods / gears in the draft amended regulations) and the need for new regulations to protect fishery resources that are not targeted commercially by natives. In addition, the sector has become a refuge for many illegal immigrants (i.e., those who breach the immigration laws) and illegal workers (i.e., those who work without the necessary authorisation). This is possibly due to the somewhat remote nature of fishing operations, where individuals can easily operate "under the radar" or outside the purview of immigration and labour officials. The Government of Antigua and Barbuda is currently reforming its immigration policy. According to the Prime Minister Hon. Baldwin Spencer, the Government is committed to implementing an enlightened immigration policy which will honour regional commitments under the *Revised Treaty of Chaguaramas*, while securing the country's borders against abuse and illegal activities (Gordon, 2010, January 05).

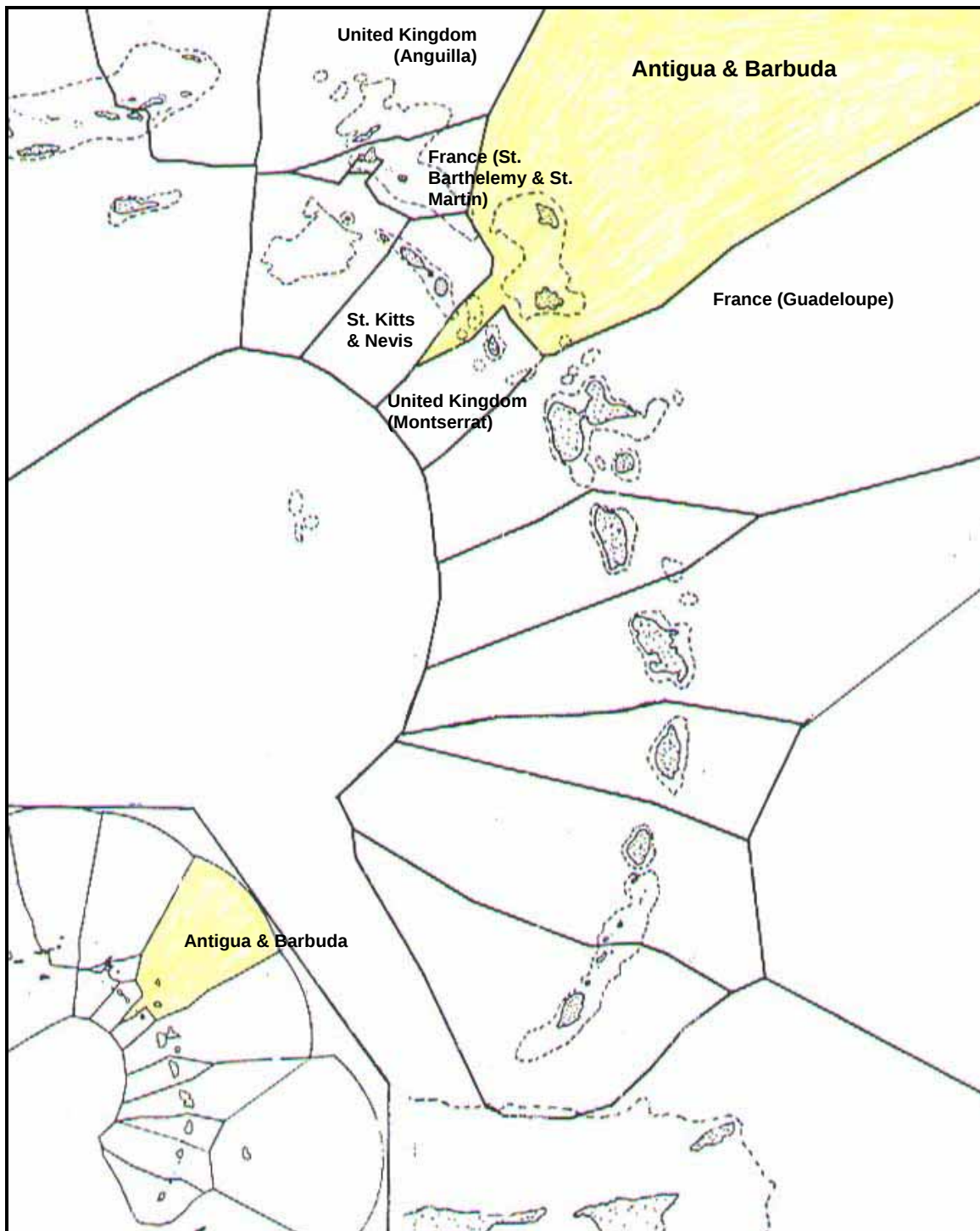


Figure 4. Exclusive Economic Zones of the Lesser Antilles sub region based on equidistance principle; maritime boundaries are indicative only since most remain unsettled (Source: Dalhousie Ocean Studies Program, Dalhousie University, Halifax).

Breaches of the Fisheries Legislation

From 1992 to May 2009, a total of 129 offences committed under the *Fisheries Act (1983)* and the *Fisheries Regulations (1990)* were compounded. Section 38 (1) of the *Fisheries Act (1983)*, gives the Minister responsible for Fisheries, the power to compound an offence against the Act or any regulations made under the Act, on the condition that: the person who has committed the offence expressed a willingness in a prescribed form to compound the offence; the compounding of the offence is notified in writing to the appropriate Magistrate's Court; the sum of money accepted on the behalf of the Government does not exceed the maximum fine specified for the offence; and the offence does not apply to Section 24 or Section 30 of the Act (Section 24 relates to prohibited fishing methods such as the use of or attempted use of explosives whilst Section 30 relates to assaulting or obstructing authorised officers). The compounding of offence is the most expeditious option for dealing with breaches of the fisheries legislation, since cases taken to the Magistrate's Court can drag on for an extended period due to the heavy demand placed on the Court. Although the Magistrates' Courts have limited jurisdiction over minor criminal cases as well as family, civil and juvenile cases, they are the primary courts. Acting Chief Justice of the Eastern Caribbean Supreme Court, Hon. Justice Brian Alleyne (2006), indicated that approximately 90% of the cases which come before the courts are adjudicated by Magistrates.

Figure 5 provides a breakdown and to some extent ranks the various aspects of IUU fishing in terms of priority; note that the ranking of unlicensed fishing by foreign vessels is grossly underestimated due to lower number of offshore or distant patrols as opposed to coastal patrols.

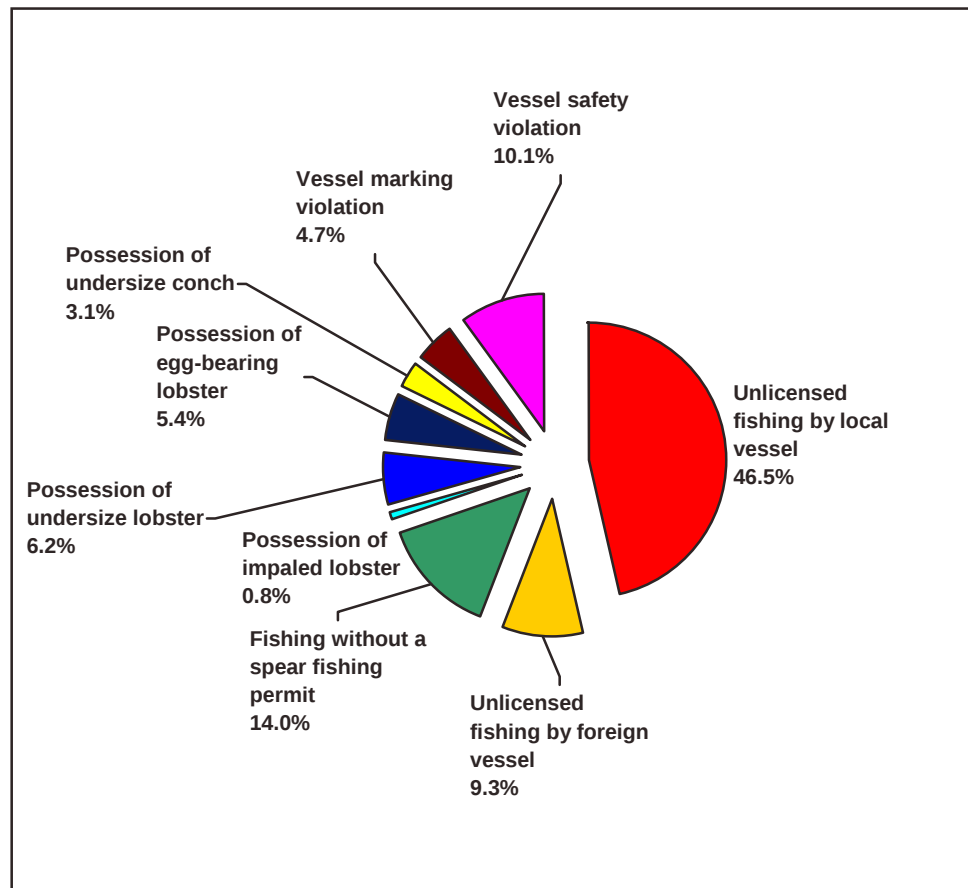


Figure 5. Breaches of the fisheries legislation of Antigua and Barbuda from 1992 to May 2009 (N = 129 compounded offences).

Level of Compliance Regarding Local Fishing Licence

Fishing without a local fishing licence accounted for 47% of the breaches of the fisheries legislation since 1992 (Figure 5). The *Fisheries Act (1983)* makes no provision for different categories of local fishing licence, hence the same fee applies (EC\$5 per foot plus EC\$25 communication tax) irrespective of type of fishing operations (commercial, recreational, subsistence, etc). This has been used as an argument by certain fishers for the low level of compliance as well as the fact that the licence only runs from 01 January to 31 December of the same year (i.e., there are no provisions for the 12-month licence period to extend to the following year). The latter issue is related to government's revenue and expenditure procedures regarding the Fisheries Division.

Based on annual vessel census of fishing activity, the overall compliance rate was lowest in 2006 (34%) and highest in 2001 (58%). For Barbuda the compliance rate was 25% in 2008 as oppose to 53% for Antigua. Overall estimated loss revenue due to non-compliance ranged from EC\$11,620 to EC\$27,875 per annum (Table 1).

Table 1. Level of compliance with respect to licensing of local fishing vessels in Antigua and Barbuda.

	Year							
	2001	2002	2003	2004	2005	2006	2007	2008
No. of fishing vessels licensed	167	167	158	117	153	118	142	191
No. of active fishing vessels (based on annual census)	289	343	292	276	348	343	351	382
Rate of compliance with respect to licensing	57.8%	48.7%	54.1%	42.4%	44.0%	34.4%	40.5%	50.0%
Forecasted revenue in EC\$ from licensing of active fishing vessels (including communication tax where applicable)	\$35,460	\$45,028	\$39,375	\$37,083	\$47,380	\$45,830	\$47,420	\$52,655
Licence and communication tax collected (EC\$5 per foot plus EC\$25 where applicable)	\$23,840	\$24,920	\$23,319	\$17,128	\$23,132	\$17,955	\$22,122	\$29,784
Estimated loss revenue in EC\$ due to non-compliance	\$11,620	\$20,108	\$16,056	\$19,955	\$24,248	\$27,875	\$25,298	\$22,871

Actions Taken Regarding Local Fishing Licence

Actions taken in an effort to increase level of compliance regarding local fishing licence include:

- Increase the number of fisheries patrols (mainly coastal patrols).
- Increase in the level of the minimum fine for first offence from EC\$5 per foot to EC\$20 per foot.
- Detention of vessel until compliance for repeat offenders (three or more repeated offences) in addition to the fine.
- Improve monitoring of fishing vessels activity through annual vessel census since 2001.
- Issuance of fisher photo identification cards to readily identify authorised fishers.
- Restriction of concessions relating to fishing inputs to only owners of licensed fishing vessels.

- Shortening the grace period for annual licensing of vessels from 31 March to 31 January due to the fact that the original measure yielded insufficient improvement in the level of compliance.
- Consultations with the Barbuda Council and fisherfolk organisations on ways to improve compliance.
- Issuance of letters to hoteliers operating sport fishing charters to remind them of their obligations under the fisheries legislation.

Level of Compliance Regarding Foreign Fishing Licence

From 1992 to May 2009, 78% of the foreign vessels found to be fishing without a foreign fishing licence were from the neighbouring French territories (mainly Guadeloupe). The mean weight of fish confiscated for the same period was 477 kg (1052 lbs). Les Affaires Maritimes (Bureau d'Etude de Conseil et d'Assistance sur la Pêche et les Activités liées à la Mer [WARICHI], 1997) estimated that in 1982, 70 traditional boats were each fishing 100 kg per day and nearly 20 launches fishing 500 kg per trip, from Antigua and Barbuda waters. The situation deteriorated further in the space of 10 years, with the presence of fishers from Guadeloupe more than double.

The Sea Around Us Project (2009) estimated that in 2006 vessels from Guadeloupe (France) landed about 1,324 metric tons of fish from Antigua and Barbuda waters (Figure 6); thus the local retail value of IUU catch by Guadeloupe was EC\$20.4 million, for that period. Antigua and Barbuda only accounted for 61.5% of the total landings of 5,025 metric tons within its marine jurisdiction in 2006. An additional 38.5% or 1,933 metric tons was estimated to be landed by countries other than Antigua and Barbuda, highlighting the serious nature of the problem (Figure 6). Based on the fore mentioned information and the fact that at least four times less offshore patrols as opposed to coastal patrols are conducted, unauthorised fishing by foreign vessels is perhaps the most important aspect of IUU fishing for Antigua and Barbuda.

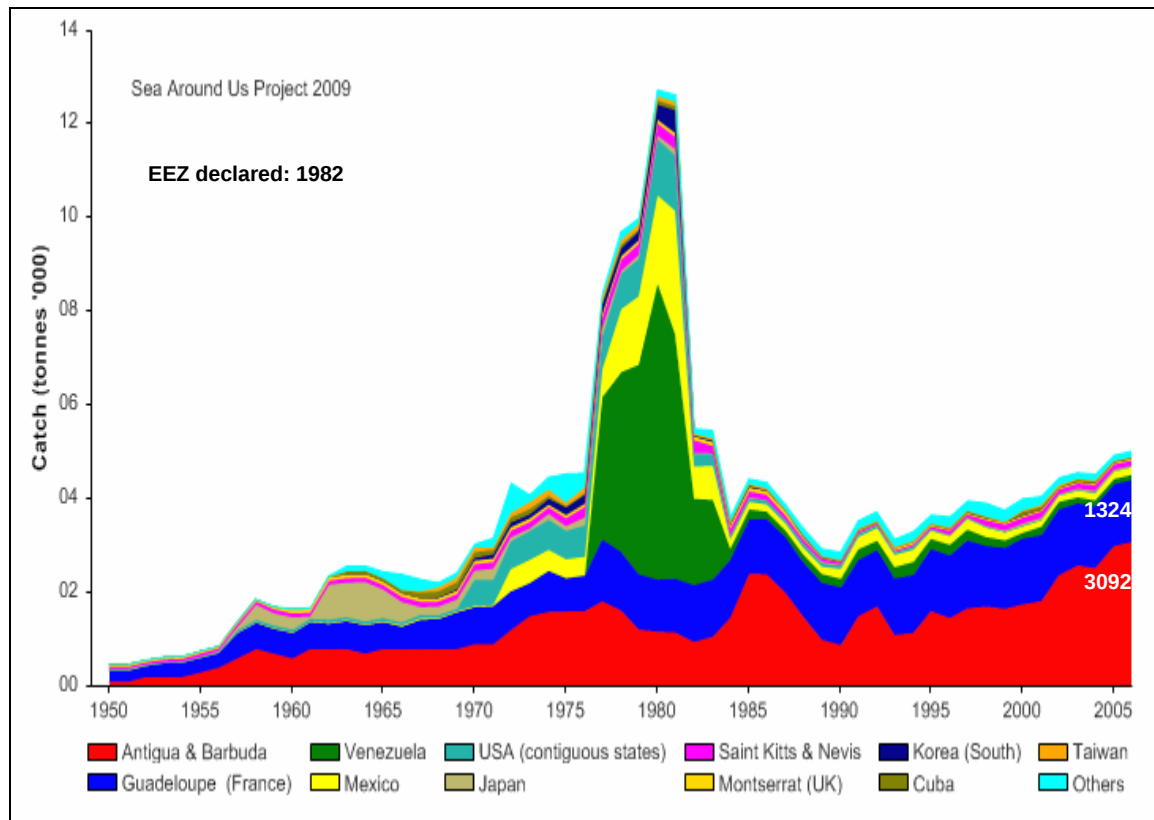


Figure 6. Landings by fishing country in Antigua and Barbuda waters (Source: Sea Around Us Project, 2009).

Actions Taken Regarding Unauthorised Fishing by Foreign Vessels

Actions taken to address unauthorised fishing by foreign vessels in Antigua and Barbuda waters include:

- Increase in the number of fisheries patrol (mainly offshore or distant patrols)
- Increase in the level of the minimum fine for first offence.
- geo-referencing to identify “hot spots” with the aim of increasing the likelihood of apprehending offenders.
- Increase collaboration with French authorities and other local agencies (e.g., Ministry of Foreign Affairs)

The Fisheries Division welcomes the initiative by the European Community to intensify its action against IUU fishing and considers *European Council Regulation No 1005/2008 to Prevent, Deter and Eliminate IUU fishing* as supportive of local measures to deal with the problem. The Regulation will apply from 1 January 2010 and:

- Requires all seafood entering the EU to be certified as having been caught legally.

- Enables the EU to adopt retaliation measures against States and vessels which repeatedly and obviously breach international rules of fisheries conservation and management measures.
- Increases financial sanctions for serious breaches of rules on fishing and trade in illegal catches.
- Takes stronger measures to prevent the participation of EU nationals in IUU activities.
- Steps up cooperation with the international partners to improve monitoring, control and surveillance of IUU activities.
- Takes action within the regional fisheries management organisations to improve the fight against illegal fishing and enhances cooperation between these organisations.
- Increases support for the developing countries to improve control and management in their national waters.

Vessel Safety Violations and Occupational Health and Safety

Vessel safety violations accounted for 10% of the breaches of the fisheries legislation from 1992 to May 2009 (Figure 5). In terms of major incidents related to occupational health and safety (those making news headline), there have been one fatality to-date and 28 fishers rescued from as far a field as the neighbouring island of Nevis (Figure 7). Since 2006, at least three fishing vessels have ran aground on the surrounding reefs and islands around Antigua and Barbuda (Figure 8). Other areas of concern include the occupational health and safety of SCUBA divers employed in the Queen conch and spiny lobster fisheries; there have been an increase in the number of anecdotal and confirmed cases of decompression sickness or the “bends”.

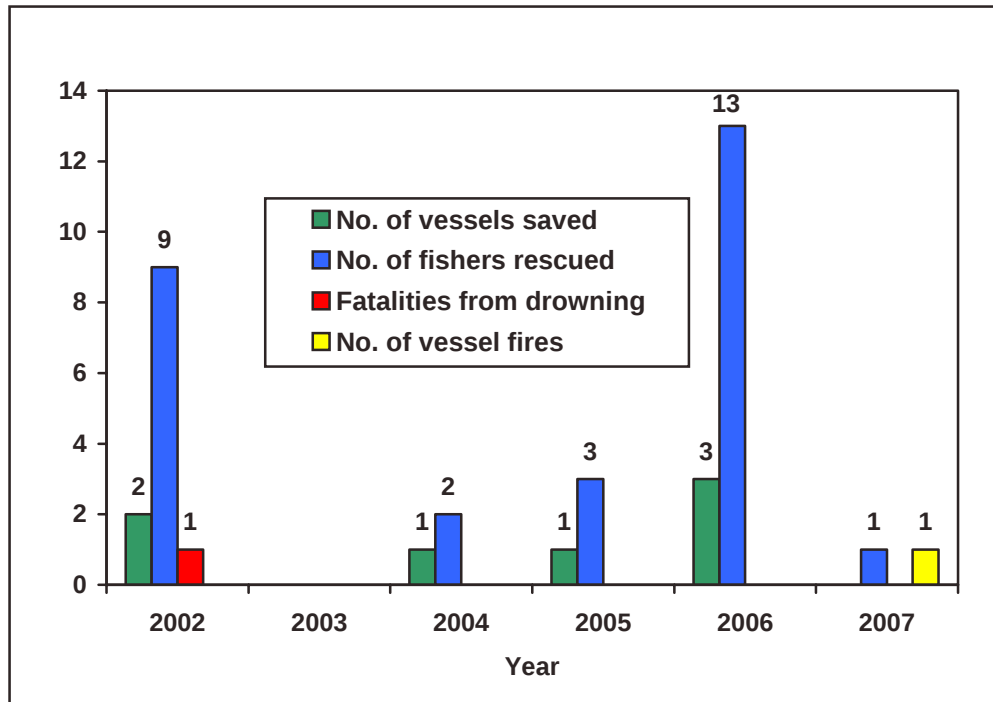


Figure 7. Major incidents relating to occupational health and safety in the fisheries sector of Antigua and Barbuda (Data Sources: The Daily Observer and the Antigua Sun Newspaper).



Figure 8. Grounded fishing vessel on Sandy Island, west of Antigua; vessel was subsequently destroyed.

Actions Taken to Improve Occupational Health and Safety

Actions taken by the Fisheries Division and / or Coast Guard to improve occupational health and safety in the fisheries sector include:

- Increase in the number of vessel safety inspections at sea.
- Increase in the level of the minimum fine from EC\$100 to EC\$200 for first offence related to vessel safety.
- Detention of vessel until compliance for repeat offenders (three or more repeated offences) in addition to the fine.
- Mandatory requirement for communication and safety equipment (life jackets, flares, sound making device, etc) plus first aid material for annual licensing of fishing vessels.
- Providing practical training to fishers regarding the use of Global Positioning System (GPS) receivers.
- Training of conch and lobster divers in SCUBA diving safety.



Figure 9. SCUBA diving safety workshop held in 2006 by the Environmental Awareness Group, with support from the Fisheries Division and Dive Antigua.

Level of Compliance Regarding Vessel Marking Conditions and Actions Taken

Vessel marking violations accounted for 5% of the breaches of the fisheries legislation since 1992 (Figure 5). The *Vessel Frame Survey 2001* (Horsford, 2004a) indicted that 17% of the active fishing vessels in Antigua were unmarked; for Barbuda the percentage was more than twice that of Antigua (38%). While the bearing of identification marks is one of the general conditions for licensing of local fishing vessels (Section 15(b) of the *Fisheries Regulations of 1990*), the present regulations do not address fishing vessels that are not licensed or inactive. There is therefore no requirement for fishing vessels to bear the identification marks at all times. The draft amended regulations seeks to address this issue by linking the condition of bearing identification marks to the precursor of the licensing process, that is, the registration or recording of vessels entering the fisheries.

Actions taken to improve compliance include:

- Increase in the number of inspections at sea.
- Increase in the level of the minimum fine from EC\$100 to EC\$300 for first offence.
- Detention of vessel until compliance for repeat offenders (three or more repeated offences) in addition to the fine.
- Assist fishers in Barbuda on three occasions with marking of vessels.

Level of Compliance Regarding Spear Fishing Permit and Actions Taken

At the end of 2006, fishing without a spear fishing permit accounted for 10% of the violations; by May 2009, the level of spear fishing violations rose to 14% (Figure 5) with most of the upsurge taking place in the middle of 2008. This was possibly related to the unemployment generated by declines in the key economic sectors (tourism and construction) in 2008 and the role the fisheries sector plays as an “economic safety net”.

Actions taken to improve compliance include:

- Increase in the number of coastal patrols.
- Increase in the level of the minimum fine from EC\$250 to EC\$500 for first offence.



Figure 10. Illegal spear fishing activity in Cades Bay Marine Reserve.

Level of Compliance Regarding Queen Conch Conservation Measures and Actions Taken

The *Fisheries Regulations, No. 10 of 1990*, prohibits the harvesting of immature conch. This is conch with a shell smaller than 18 cm (7 inches) or whose shell does not have a flared lip. For conch out of the shell, the meat weight must not be less than 225 grams (8 ounces), after removal of the digestive gland. The Regulations also makes provisions for a close season. In terms of implementation of legislation, the Fisheries Division and the Antigua and Barbuda Defence Force Coast Guard conduct routine checks of fishing vessels. Possession of immature conch accounted for 3.1% of the breaches of the fisheries legislation since 1992 (Figure 5).

In addition to routine checks, the conch biological programme captures data on the size, sex and maturity of conch specimens landed. This is used to monitor trends in the fishery (e.g., whether or not smaller conch are being landed) and assess the effectiveness of enforcement measures regarding conservation (Figure 11). In 2001, a compliance rate of 85% or greater was set as an informal target for the conch fishery despite the mean meat weight landed being significantly greater than the legal requirement, and no significant negative trends were detected regarding the mean catch per unit effort or the mean depth dived. This was done as a precautionary measure since conch is particularly susceptible to over fishing since it is sedentary and aggregates in specific habitats. Only in 2001, 2003 and 2008 did conch fishers and the Fisheries Division fail to achieve this goal.

For the past decade, the mean rate of compliance regarding size restriction was 88%, suggesting most had the opportunity to reproduce at least once before capture. The high level of compliance in the conch fishery was attributed to:

- the fact that fishers came from communities with a strong sense of social and environmental activism (the southern, neighbouring villages of Urlings and Old Road in Antigua).
- the participatory approach taken as regards to management.
- the conservation awareness programme regarding the status of the resource, management measures and the *Convention on International Trade in Endangered Species of Wild Fauna and Flora*.
- the small and homogeneous nature of the fishery (at most 10 SCUBA diving vessels and 58 fishers from the fore mentioned communities); this reduce the likelihood of user conflicts related to gear or “insider-outsider” perception.

For continued success, the Fisheries Division will have to:

- maintain the good dialogue with the fishers;
- maintain the conservation awareness programme;
- further strengthen its monitoring and enforcement programmes (shortage of staff have led to gaps in the data series – Figure 11); and
- foster the development of fisherfolk organisations such as the South Coast United Fisherfolk Cooperative.

The use of special permits to limit fishing effort and a close season from 1st July to 31st August of every year will be implemented with the passage of the draft amended regulations in 2010.

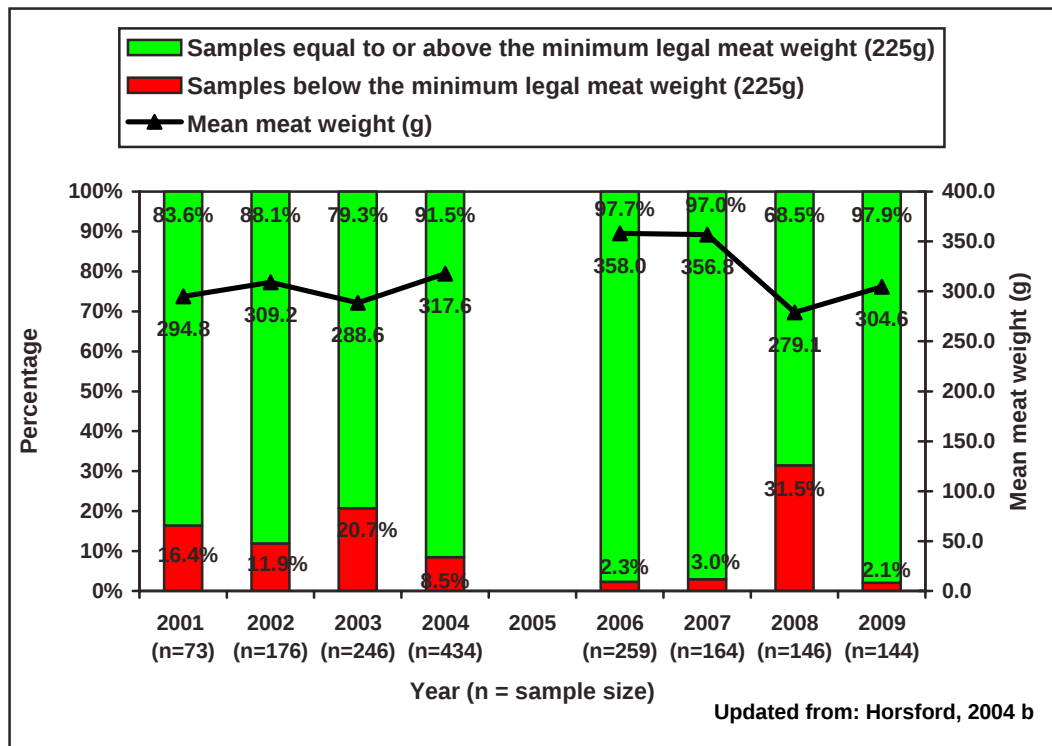


Figure 11. Trend in the mean meat weight of Queen conch (*Strombus gigas*) landed in Antigua and Barbuda as well as level of compliance regarding the minimum legal meat weight of 225 grams; meat weight is the weight of the conch after removal of shell and digestive gland.

Level of Compliance Regarding Spiny Lobster Conservation Measures and Actions Taken

According to the *Fisheries Regulations, No. 10 of 1990*, no person shall take, have in possession, sell or purchase:

- any lobster carrying eggs; or
- any undersize lobster (i.e., lobster whose carapace is less than 95 mm or weigh less than 680 grams or having a tail weighing less than 200 grams); or
- any moulting lobster (i.e., lobster that is “soft-shelled”); or
- any lobster that has been speared, hooked, or otherwise impaled.

The Regulations limits fishing of lobster to only by hand, loop, pot or trap. It also requires lobster to be landed whole and prohibits the removal of eggs from lobster. Regarding traps or pots, the minimum allowable mesh size for the wire covering the gear is 3.81 cm or 1½ inches. The Regulations also makes provisions for a closed season by Notice published in the *Gazette*.

Routine check of fishing vessels and search of premises upon reasonable grounds, indicated that 12.4% of the breaches of the fisheries legislation since 1992, were related

to lobster conservation measures; possession of undersize lobster was the most common offence (Figure 5).

The lobster biological programme captures data on size, sex and maturity to assess the status of the resource and effectiveness of enforcement measures. In all cases, the mean carapace length was significantly greater than the minimum legal size (95 mm), indicating that the majority of the samples were significantly older than the age of first maturity (between 3 to 5 years). In addition, no significant negative trends (i.e., decreasing size and decreasing catch) were detected with respect to the mean carapace length and the mean catch per unit effort. Despite this a compliance rate of 85% or greater (regarding the minimum size) was set as an informal target for the fishery in 2001. This was done since a non-compliance rate that was greater than 15% was cause for concern. At worst, a compliance rate of 61% was obtained in 1997 (Figure 12), meaning only 61% of the lobster landed had the opportunity to reproduce at least once before capture. The informal target was only achieved by the industry and the Fisheries Division in 2003.

The lobster fishery unlike the conch fishery is relatively large (63.6% of the active fleet), multi-gearred and dispersed across Antigua and Barbuda (i.e., it is not associated with any distinct communities with the exception being Codrington, Barbuda). Certain strategies that were applicable to the conch fishery were therefore ineffective with regards to the lobster fishery. Greater effort, in terms of enforcement and conservation awareness, has to be made to achieve the fore mentioned goal. With the subsequent enactment of the draft amended regulations in 2010, the lobster fishery will move from an open access to a limited entry management regime through the use of special permits. The removal of the tar spot or spermatophore from the lobster will become an offence under the regulations. The spermatophore is a mass containing spermatozoa, which is deposited by the males on the females during copulation; it is later used by the females for fertilisation of eggs. In addition, a close season shall commence from the 1st day of May and ends on the 30th day of June of every year. These measures are to improve management of total fishing effort and offer some protection during the peak spawning period, thereby contributing to long term sustainability. In an effort to deal with the landing of undersize lobster and as part of the conservation awareness programme, the Fisheries Division will issue lobster gauges to fishers so that they can readily determine undersize lobster; gauges were issued free of cost in the past to owners of lobster fishing vessels.

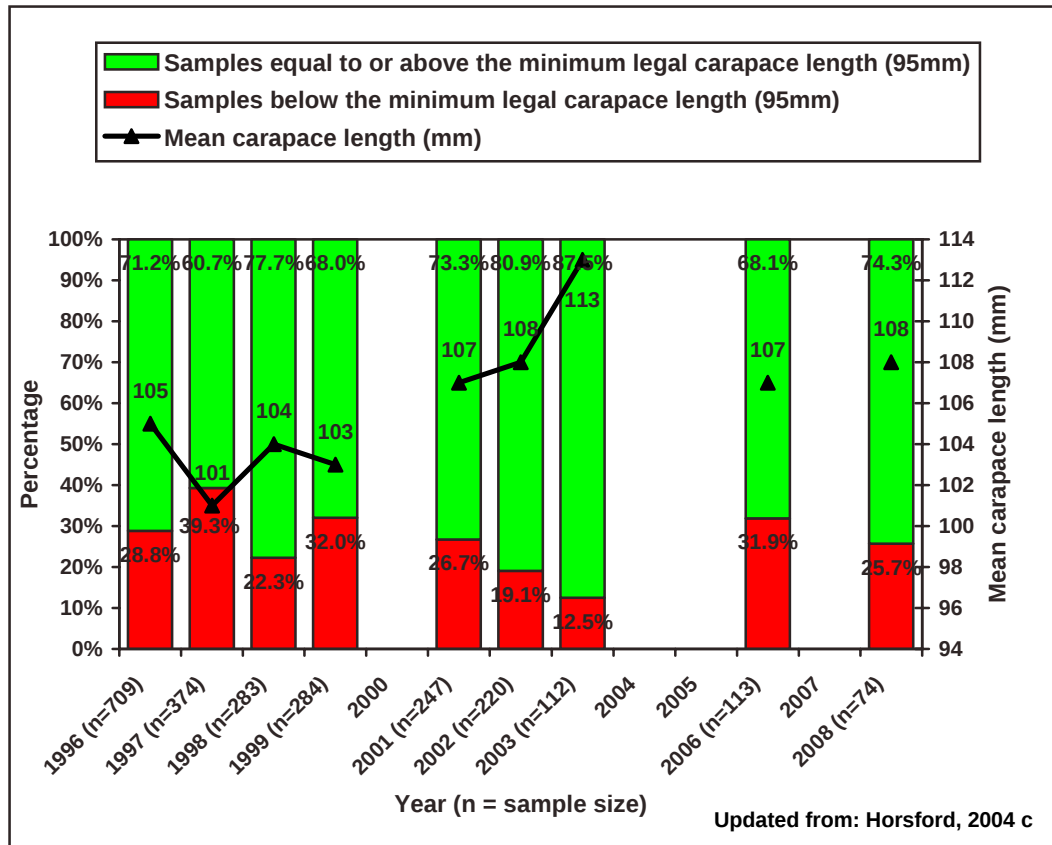


Figure 12. Trend in the mean carapace length of Caribbean spiny lobster (*Panulirus argus*) landed in Antigua and Barbuda as well as level of compliance regarding the minimum legal carapace length of 95 mm.



Figure 13. Measuring the carapace length of the Caribbean spiny lobster (*Panulirus argus*) from the front edge of the carapace (between the rostral horns) along the median dorsal line to the maximum concavity of the rear edge of the carapace.

Theft of Fish Pots or Traps and Actions Taken

A study conducted in 2000 estimated that the number of traps lost to theft was valued at EC\$1.13 million (Table 2). This estimate alone is comparable to the value of traps lost during hurricanes (e.g., Luis: EC\$1.71 million; Georges: EC\$1.77 million; Jose: EC\$1.32 million). Fishers have adjusted to the issue of theft by setting their traps without surface buoys using global positioning system (GPS) receivers. Mandatory trap marking and specifications for traps such as biodegradable panels will be required with the enactment of the draft amendment regulations in 2010. It is envisioned that this will reduce the number of cases of theft and address the issue of “ghost fishing” associated with lost traps. Article 8.4.6 of the *FAO Code of Conduct for Responsible Fisheries*, declares:

States should cooperate to develop and apply technologies, materials and operational methods that minimise the loss of fishing gear and the ghost fishing effects of lost or abandoned fishing gear.

Table 2. Estimates of annual losses of traps due to theft, cut-away and ground swell in Antigua and Barbuda (Source: Horsford, 2000).

Type of Vessel	Mean # of traps	percentage estimated to be lost to theft	percentage estimated to be lost to cut-away	percentage estimated to be lost to ground swell	Mean value of trap (EC\$)	Annual Losses (EC\$)		
						Theft	Cut-away	Ground Swell
Antigua								
open/cabin	47	28.4%	9.3%	4.8%	\$148	\$476,096	\$155,905	\$80,467
sloop/launch	128	44.4%	5.4%	0%	\$169	\$547,463	\$66,583	0
						\$1,023,559	\$222,488	\$80,467
Barbuda								
open	56	29.8%	3.6%	40.3%	\$153	\$109,790	\$13,263	\$148,475
Total						\$1,133,349	\$235,571	\$228,942

Market-related Measures

With the formation of the single European market in January 1993, legislation governing the production of food were harmonised throughout the European Union (EU), which is Antigua and Barbuda's main export market for fishery products. The key to European Food Law is the principle of quality management and process-oriented control throughout the production chain, from fishing vessel to the consumer's table. In order to satisfy the new trade regime, local exporters were required to upgrade their food safety and quality assurance systems to allow for Own-checks or HACCP (Hazard Analysis Critical Control Points). HACCP or Own-checks is a "preventative-based" food safety system as oppose to the traditional end product testing system. The United States and Canada also require such system be in place for trade of fishery products.

For successful implementation of HACCP or Own-checks, an effective record keeping system is required. This allows for greater transparency in the market as well as traceability of product. The Fisheries Division has used the Receiving Logs of exporters (Appendix I), in addition to the Licensing and Registration Programme and the Catch and Effort Data Collection Programme, to ensure that fish caught by unauthorised vessels do not enter international trade. While this approach is somewhat effective in addressing IUU fishing and international trade, it poses serious challenges for adoption with respect to the local fish trade, in that:

- the landing and marketing of fish is not centralised (most fishers sell directly to the consumer);
- most activities are conducted on a cash basis and receipts are rarely issued;
- detailed records of sale to consumers are seldom kept; and
- in general, the educational background of fishers and middlemen hamper proper record keeping.

The Fisheries Division is seeking to address the issue of record keeping through its mandatory educational / training component for fishers in the draft amended regulations.

Fines

Figure 14 summarises the fines collected by the Fisheries Division from 1992 to May 2009. Note that in a number of cases fines have been suspended in favour of a warning or vessels have been detained until compliance (in the case of vessel marking or safety violations). In February 1998, in an effort to ensure consistency and transparency in the compounding of offences a schedule of suggested minimum fines was approved by the Minister responsible for Fisheries. This addressed the ad hoc manner in which offences were earlier compounded and ensured equity in the process. These fines were revisited and updated in December 2009 and a new schedule of suggested minimum fines was approved (Appendix II). This review and update process was consistent with Article 21 of the *International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing* (IPOA-IUU) which declares:

States should ensure that sanctions for IUU fishing by vessels and, to the greatest extent possible, nationals under its jurisdiction are of sufficient severity to effectively prevent, deter and eliminate IUU fishing and deprive offenders of the benefits accruing from such fishing. This may include adoption of a civil sanction regime based on an administrative penalty scheme. States should ensure the consistent and transparent application of sanctions.

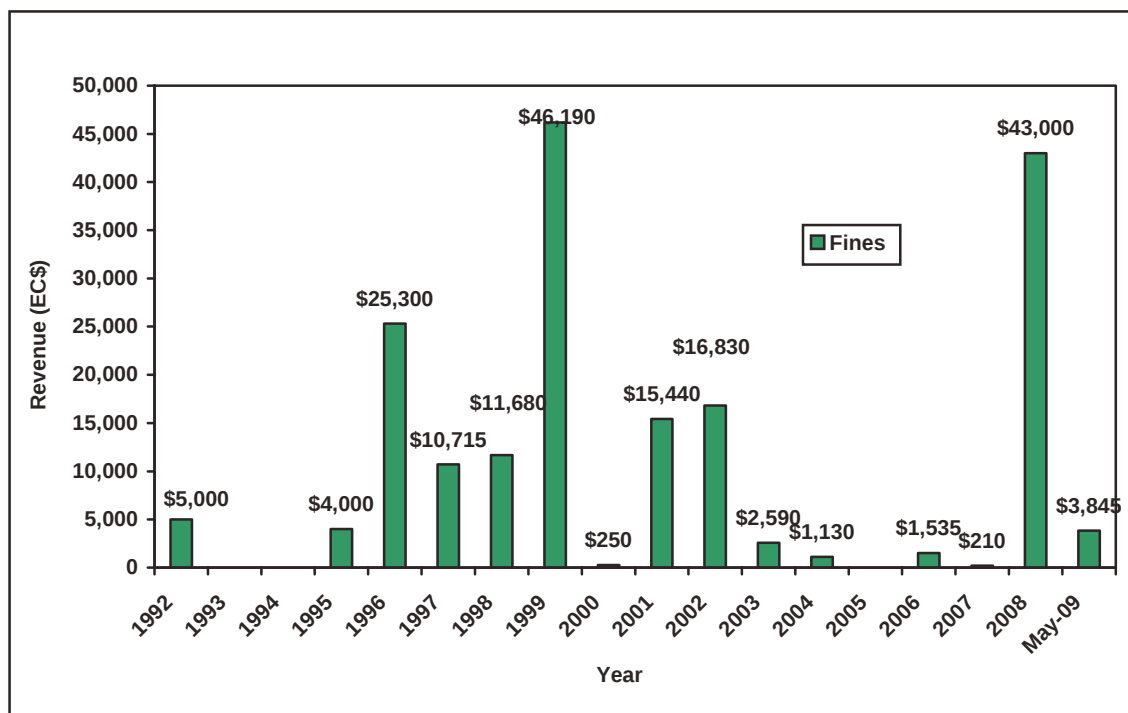


Figure 14. Revenue collected by the Fisheries Division for fines related to breaches of the fisheries legislation.

Tentative Measures

The following proposed measures are up for further review in 2010:

- The “naming and shaming” of offenders who opt to compound offences. The issue of concern is the questionable ethics of “naming and shaming” once the accused agrees to compound the offence in lieu of the possible consequences of prosecution (lengthy trial, increase legal cost, and particularly unwanted publicity). Also the implications of “naming and shaming” on the effectiveness of the compounding scheme (i.e., more accused may opt to go to court if they are going to be “named and shamed”). Under the new schedule of suggested minimum fines (Appendix II) repeat offenders will be taken to court.
- The posting of vessels licensed to fish on the Fisheries Division website; the information would be limited to vessel name, vessel registration number and type of licence granted to maintain confidentiality. There are some concerns that this may make the falsification of vessel marking easier; however, the posting of the fore mentioned info may:
 - encourage individuals involved in IUU fishing to regularise their status;
 - allow consumers to know if they are buying from a reputable or authorised source thereby increasing transparency in the market; and
 - allow other agencies (whether local or international) to speedily identify authorised fishing vessels of Antigua and Barbuda.

Other Proposed Measures to Address IUU Fishing

Other proposed measures to address IUU fishing include:

- A mandatory educational / training component for fishers as a condition for registration; current elements of the draft syllabus include fisheries rules and regulations (local laws and *FAO Code of Conduct for Responsible Fisheries*), basic seamanship, safety at sea, rules of the road, first aid, record keeping and fish quality assurance.
- The development of a coastal watch network through collaboration with the Antigua and Barbuda Defence Force Coast Guard and other stakeholders (e.g., fisherfolk organisations, NGOs, marine tour operators). A database for recording alleged offences will also be developed.
- The secondment of two dedicated enforcement officers to fill current vacant positions in the Fisheries Division.
- Exploration of appropriate vessel monitoring and surveillance systems. This is to ensure the necessary infrastructure is in place prior to the registration of vessels and the issuance of permits to fish on the high seas. The adoption of the Draft High Seas Act and Regulations in 2011 is a critical step in the process.

- Devolution of fisheries governance through the use of local management authority (e.g., in the case of the North East Marine Management Area). This is expected to improve stakeholders' participation and foster greater compliance with fisheries regulations.
- Supporting Antigua and Barbuda Defence Force bid to increase the Coast Guard's strength, marine assets and additional stations for English Harbour, Antigua and Codrington, Barbuda.

At a broader policy level, increasing the Coast Guard component of the Antigua and Barbuda Defence Force offers additional benefits to the wider community as well as rationalise costs related to fisheries monitoring, control, surveillance and enforcement. These include:

- enhance maritime and national security;
- a “pre-emptive” approach to crime fighting in that issues related to narcotics, human trafficking and illegal firearms are addressed at sea as oppose to dealing with the consequences later ashore; and
- increase in the human resource base for future development of the maritime sector (shipping, yachting, cruise tourism, marine tours, dive sub sector, etc).

Timeline for Proposed Measures

Timeline for proposed measures and completion of legislative reform is included in Appendix III.

BUDGET

In 2010, total recurrent expenditure allocated by the Government of Antigua and Barbuda for resource assessment, fisheries monitoring, control, surveillance and enforcement, was EC\$2.87 million (Appendix IV). This includes implementation of the NPOA-IUU since the fore mentioned activities are intertwined and programmes are multi-objective. Expenditure related to surveillance and enforcement (i.e., activities conducted mainly by the Antigua and Barbuda Defence Force Coast Guard) was the largest component of the budget, 62% or EC\$1.79 million. In all cases, capital expenditure was irrelevant since expenditures were not directly associated with resource assessment or monitoring, control, surveillance and enforcement. The subsequent paragraphs provide a breakdown of the budget according to the various agencies involved in the NPOA-IUU. Note while the timeline for proposed measures and completion of legislative reform extends to 2012, only the 2010 budget is presented since Antigua and Barbuda is undergoing austerity measures to align government's revenue collection with expenditure. For this reason, it is difficult to predict how much the fiscal consolidation programme (including the public sector transformation programme) will impact on the financing of measures proposed for 2011 and 2012. Budget for these years will be rationalised according to the annual review of the fiscal consolidation programme.

The total recurrent expenditure for the Fisheries Division in 2010 was estimated to be EC\$1.4 million. Recurrent expenditure estimates were approved under the following programme headings: 1) fisheries complexes management; 2) coastal biodiversity management; 3) statistical data & analysis; and 4) teaching, training & development. Expenditure estimates related to resource assessment, fisheries monitoring, control, surveillance and enforcement were related primary to the latter three programmes and are summarised in Appendix IV. The budget allocated to the fore mentioned activities was EC\$619,579 and accounted for 44% of the Division's recurrent expenditure. Note that certain aspects of the expenditure of fisheries complexes management (e.g., inspection of exports for compliance with conservation measures) are related to monitoring, control and surveillance, however, this could not be disaggregated. For the Barbuda Council, recurrent expenditure for resource assessment, fisheries monitoring, control, surveillance and enforcement was estimated at EC\$463,982.

A crude estimate of the recurrent expenditure for fisheries related activities conducted by the Antigua and Barbuda Defence Force Coast Guard is summarised in Appendix IV. Recurrent estimates were based on the percentage of coast guard personnel in the Antigua and Barbuda Defence Force and the percentage of their activities related to fisheries monitoring, control, surveillance and enforcement. For effective financial appraisal or cost-benefit analysis of fisheries monitoring, control, surveillance and enforcement, changes would have to be made to the approved programme headings and accounting procedures outlined in the *Chart of Accounts Book* published by the Ministry of Finance. Accounting for the cost of fisheries management (including cost of licensing administration) would provide for a more detail analysis with regards to resource rent (i.e., licensing fee charged for the privilege of access to the resources to help offset government expenditure). Similarly, accounting for fisheries enforcement (vessel running

cost, repairs and maintenance, labour cost, etc) would improve assessment of the level of fines charged. For example, if in 2010 the expenditure estimated for surveillance and enforcement strategies (not including preventative-based strategies such as conservation awareness) was EC\$1.79 million based on Coast Guard's activities, and the maximum revenue collected from fines in recent times was at most EC\$43,000 (Figure 14), then the level of fines charged may be inadequate under a fisheries cost-recovery programme; note other factors such as the level of fines for other offences versus fisheries offences, and the additional benefits or positive externalities yielded from fisheries surveillance / enforcement in areas such as drug interdiction will have to be considered.

The total recurrent expenditure, EC\$2.87 million, may also be considered a crude estimate of the cost of fisheries management since monitoring, control, surveillance, enforcement and resource assessment are essential for implementation of fisheries management plans or strategies. This is approximately 4.5% of the ex-vessel value of capture production (EC\$63.95 million) forecasted for 2010. In 2008, the actual cost of fisheries management was EC\$2.36 million or 4.8% of the ex-vessel value of capture production (EC\$49.22 million).

REVIEW OF NPOA-IUU

According to the *International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing* (IPOA-IUU):

At least every four years after the adoption of their national plans of action, States should review the implementation of these plans for the purpose of identifying cost-effective strategies to increase their effectiveness and to take into account their reporting obligations to FAO under Part VI of the IPOA.

To evaluate our progress on implementation, the Fisheries Division will utilise the three-year timeline for proposed measures in Appendix III as a checklist. In doing so, the Fisheries Division will ensure that the initial review is in accordance with the provisions of the IPOA-IUU. As stated previously, budget for 2011 and 2012 will be developed in accordance with the fiscal consolidation and public sector transformation programmes. All subsequent reviews of the NPOA-IUU will take place at least every four years.

CONCLUSION

This document provides a framework for improving the management of fisheries resources of Antigua and Barbuda, and is supported by the shift in fisheries management paradigm from an open access to a limited entry management regime through legislative reform. While laws alone cannot guarantee sustainability, this document takes a *targeted approach* towards fisheries monitoring, control, surveillance and enforcement, given the nature of our fisheries and our limited human and financial resources. It also recognises the crucial role that the fishing industry and other stakeholders play in effectively addressing IUU fishing.

With the shift in management paradigm, Government will have to broaden its social programmes given the role the fisheries sector plays in the national economy as an “economic safety net”. Recognising that the current role of the fisheries sector is unsustainable in the long term and fishers are inherently vulnerable given the risk associated with investment (e.g., natural disasters, theft of gear) and unfavourable investment climate (e.g., limited access to capital and insurance coverage), the draft new and amended legislation support compliance of fishers with social programmes such as the Social Security Scheme and the Medical Benefit Scheme. Benefits such as age pension, invalidity and sickness benefits are vital towards improving the quality of life of fishers and reducing their social vulnerability. These benefits cannot be realised until fishers, however, recognise the importance of contributing to these social programmes. In the same vein, it is important that fishers recognise that the benefits of utilising the resource in a sustainable manner cannot be achieved unless the “rights to fish” is accompanied by responsible behaviour. The draft new and amended legislation seek to address this. A new framework for allocation of fishing rights is also provided through the use of “special permits”.

This document also provides a timeline and framework for implementing the measures to improve compliance and ultimately general management of the sector. As with all plans or strategies, regular review is essential towards building on successes and learning from failures; *Antigua and Barbuda's Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing* makes provision for such reviews.

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APPENDIX I. RECEIVING LOG

Lot No:

Date (dd/mm/yy)		
Supplier / Vessel Owner		
Vessel Name		
Vessel No.		
Vessel Licence No. *		
Date of Capture (dd/mm/yy)		
Location of Fishing Area		
List of Species		
Weight of Fish (kg)		
Weight of Lobster (kg)		
Weight of Conch (kg)		
General Condition of Species		
Supplier Signature		

* Prior to transaction, exporters should confirm that the fish, lobster or conch is from an authorised fishing vessel by requesting to see the vessel licence. Fish, lobster or conch bought should be in accordance with the *Fisheries Act (1983)* and the *Fisheries Regulations (1990)*.

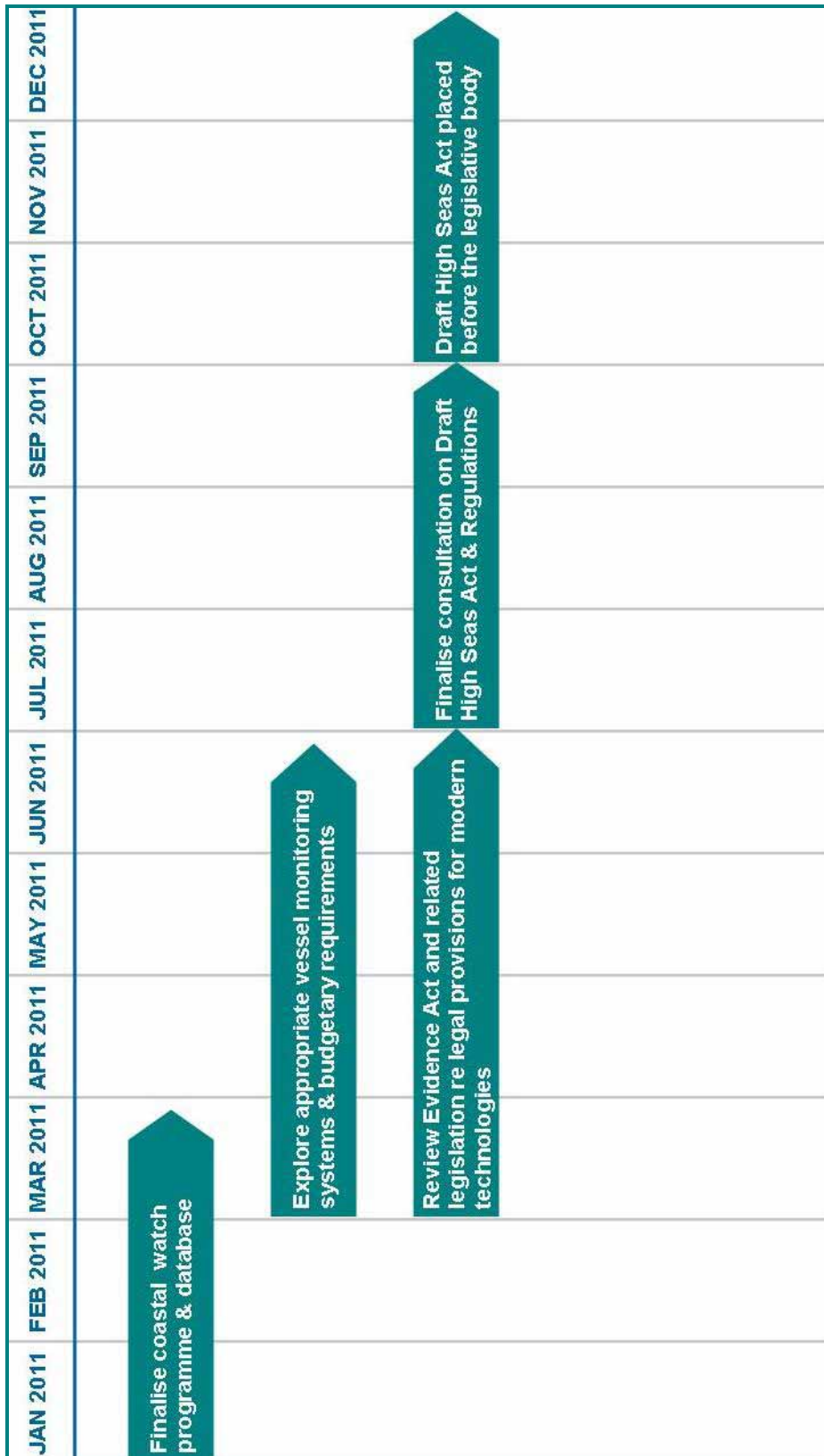
APPENDIX II. RECOMMENDED FINES IN EC\$ RELATED TO COMPOUNDING OF OFFENCE

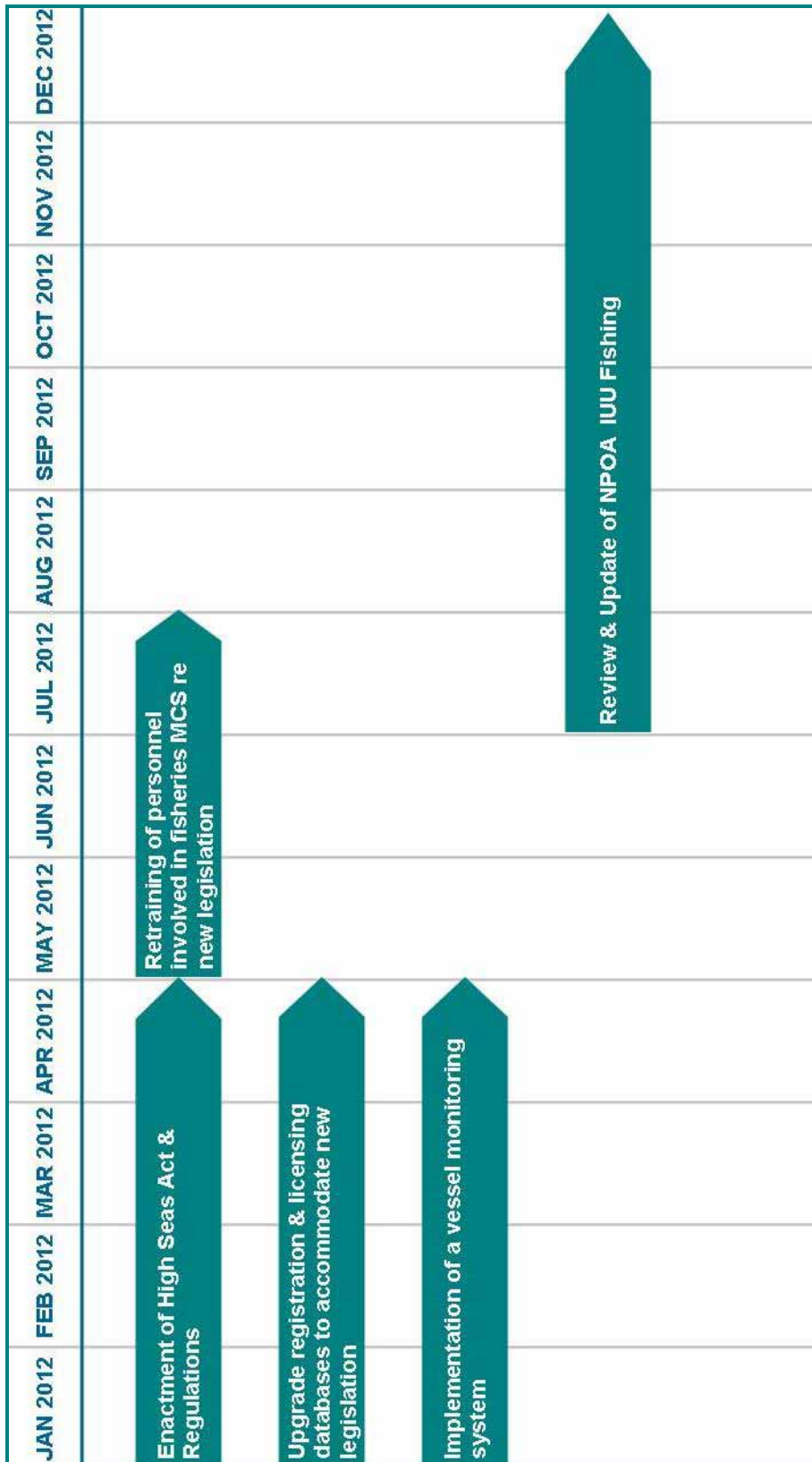
Offences	Fines	2 nd Offence	3 rd or More Repeated Offences	In contravention of the Fisheries Regulations 1990	Maximum Fines
•Operating without a local fishing licence	\$20.00 per foot	\$40.00 per foot vessel detained	Vessel detained and taken to court	Act: sec. 11 (1)	\$1000.00
•Violation of vessel safety conditions	\$200.00	\$400.00	Vessel detained until compliance and or taken to court	Reg.: sec. 15 (c)	\$1000.00
•Violation of vessel marking conditions	\$300.00	\$600.00	Vessel detained until compliance	Reg.: sec. 15 (b)	\$1000.00
•In possession of undersized lobster	\$50.00 per lobster	\$100.00 per lobster	Taken to court	Reg.: sec. 20 (2) (b)	\$5000.00 or imprisonment of 12 months
•Selling undersized lobster					
•Purchasing undersized lobster					
•In possession of egg bearing lobster	\$100.00 per lobster	\$200.00 per lobster	Taken to court	Reg.: sec. 20 (2) (c)	\$5000 or imprisonment of 12 months
•Selling egg bearing lobster					
•Purchasing egg bearing lobster					
•In possession of moulting lobster	\$50.00 per lobster	\$100.00 per lobster	Taken to court	Reg.: sec. 20 (5)	\$5000.00 or imprisonment of 12 months
•Selling of moulting lobster					
•Purchasing moulting lobster					
•In possession of lobster from which eggs have been removed	\$150.00 per lobster	\$300.00	Taken to court	Reg.: sec. 20 (5)	\$5000.00 or imprisonment of 12 months
•Selling lobster from which the eggs have been removed					
•Purchasing of lobster from which the eggs were removed					

Offences	Fines	2 nd Offence	3 rd or More Repeated Offences	In contravention of the Fisheries Regulations 1990	Maximum Fines
• In possession of / sale of lobster that has been speared, hooked or otherwise impaled	\$100.00 per lobster	\$200.00 per lobster	Taken to court	Reg.: sec. 20 (4)	\$5000.00 or imprisonment of 12 months
Disturb, take, sell, purchase, or have in possession any turtle eggs	\$1000.00	\$2000.00	Taken to court	Reg.: sec. 21 (2) (b)	\$5000.00 or imprisonment of 12 months
Interfered with a turtle nest	\$1000.00	\$2000.00	Taken to court	Reg.: sec. 21 (2) (c)	\$5000.00 or imprisonment of 12 months
Fish for, take, sell or have in possession undersized turtles	\$1000.00	\$2000.00	Taken to court	Reg.: sec. 21 (2) (d)	\$5000.00 or imprisonment of 12 months
In possession of turtle during the close season [March to August]	\$500.00 per turtle	\$1000.00 per turtle	Taken to court	Reg.: sec. 21 (2) (a)	\$5000.00 or imprisonment of 12 months
Sell, purchase or have in possession the shell of an undersize turtle	\$500.00 per shell	\$1000.00 per shell	Taken to court	Reg.: sec. 21 (2) (e)	\$5000.00 or imprisonment of 12 months
Take, sell, purchase or have in possession immature conch	\$50.00 per conch	\$100.00 per conch	Taken to court	Reg.: sec. 22 (1)	\$5000.00 or imprisonment of 12 months
Use of spear gun (fish gun) without permission	\$500.00	\$1000.00	Taken to court	Reg.: sec. 25 (1)	\$5000.00 or imprisonment of 12 months
Using mesh wire or nets under the minimum size	\$1000.00	\$2000.00	Taken to court	Reg.: sec. 26 (1)	\$5000.00 or imprisonment of 12 months
Take or collect coral and other marine fauna without permission from CFO	\$2000.00	\$4000.00	Taken to court	Reg.: sec. 23	\$5000.00 or imprisonment of 12 months
Import, sell or export aquarium fish without permission	\$1000.00	\$2000.00	Taken to court	Reg.: sec. 24	\$5000.00 or imprisonment of 12 months
Trans-shipment of fish without the permission from CFO	Maximum fine	Taken to court	Taken to court	Reg.: sec. 15 (e)	\$5000.00 or imprisonment of 12 months

APPENDIX III. TIMELINE FOR PROPOSED MEASURES TO ADDRESS IUU FISHING

[illegible]





APPENDIX IV. 2010 BUDGET TO IMPLEMENT NPOA-IUU

Agency	Type of Expenditure	Description	Budget (EC\$)
Fisheries Division	Recurrent	Coastal Biodiversity Management Salaries & Allowances Conservation Materials & Supplies Repairs or Maintenance of Marine Vessels	\$215,935 \$16,150 \$13,600
		Statistical Data & Analysis Salaries & Allowances Conservation Materials & Supplies	\$203,046 \$2,125
		Teaching, Training & Development Salaries & Allowances Conference & Workshops	\$164,473 \$4,250
			\$619,579
Barbuda Council	Recurrent	Fisheries Programme	
		Environmental Legislation & Monitoring Personal Emoluments & Employer Contribution	\$100,217
		Fisheries Services Administration Personal Emoluments, Allowances & Employer Contribution Travel Expenses Office, Computer Supplies & Equipment Education, Training & Development Miscellaneous Expenses	\$193,765 \$90,000 \$20,000 \$50,000 \$10,000
			\$463,982
Antigua and Barbuda Defence Force (Coast Guard component)	Recurrent *	National Defence Repairs & Maintenance Services Monitoring, Regulations & Enforcement Ancillary Services	\$557,998 \$117,252 \$1,194 \$1,110,912
			\$1,787,356
Total for Resource Assessment, Fisheries Monitoring, Control, Surveillance & Enforcement			\$2,870,917

* Recurrent estimates for the ABDF Coast Guard were based on the percentage of coast guard personnel in the ABDF and the percentage of their activities related to fisheries monitoring, control, surveillance and enforcement.

