Summary report on available catch and fishing effort data for flyingfish and dolphinfish in the Eastern Caribbean

S-A. Cox and H. A. Oxenford

Submitted to

Food and Agriculture Organization of the United Nations (FAO)

by

Centre for Resource Management and Environmental Studies (CERMES),

University of the West Indies Cave Hill Campus, Barbados

February 2018

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Cover photographs: Courtesy of Hooked Barbados.

Abstract

The fisheries sector has long served as an integral component of the cultural, economic, and social fabric of the Eastern Caribbean. The sector is threatened by several issues including its vulnerability to climate variability and change. In recent times, the sector has been significantly impacted by unprecedented influxes of sargassum that have coincided with declines in flyingfish catches, and high catches of extremely young dolphinfish. This occurrence has led to discussions at local and regional levels about the possible long-term implications for local fisheries. The relationships between sargassum influxes and key fishery species need to be clearly understood, to inform future policy and management decisions in the fishery sector and develop adaptive response measures to ensure sustainability of fisherfolk livelihoods. As such, a 'sargassum subproject' was approved within the FAO/GEF Climate Change Adaptation in the Eastern Caribbean Fisheries Sector (CC4FISH) project to investigate this relationship. Here we report on the outcome to date of our attempts to procure official catch and fishing effort data (a critical component of this investigation) held by the fisheries divisions of the Eastern Caribbean islands. This process has revealed a dearth of comprehensive catch and effort datasets that can be used to investigate relationships with sargassum landing amounts. This report outlines the data procurement process, a description of datasets obtained to date and a brief discussion of next steps.

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Contents

1. Introduction

In Eastern Caribbean countries, the fisheries sector is critically important for livelihoods, income, food security and poverty reduction. It is also highly vulnerable to climate change and climate variability, which is being primarily driven by human activities at the global scale[1]. In 2011 and 2014 unprecedented quantities of pelagic sargassum washed into coastal waters and stranded along coastlines of Eastern Caribbean states. These events have triggered much speculation among local stakeholders on the possible long-term implications for local fisheries. Discussion at local and regional levels regarding sargassum has considered a variety of issues from loss of fishing time and income, to the introduction of alien species. However, of particular concern is the significant reduction in flyingfish catches that have so far coincided with these sargassum events, and the very high catches of extremely young dolphinfish from around the floating sargassum. The timing, frequency and severity of sargassum events in the future, and the nature of the relationships between sargassum influxes and key fishery species need to be clearly understood, to inform future policy and management decisions in the fishery sector and develop adaptive response measures to ensure sustainability of fisherfolk livelihoods.

In view of the critical importance of sustainable fisheries to regional livelihoods, efforts to better understand underlying mechanisms associated with sargassum events are requisite to the development of adaptive response measures. In recognition of this need a 'sargassum subproject' was proposed and approved under the FAO/GEF Climate Change Adaptation in the Eastern Caribbean Fisheries Sector (CC4FISH) project, which has a broader aim to increase overall resilience and reduce vulnerability to climate change impacts in the Eastern Caribbean fisheries sector. This sargassum subproject aims to investigate the relationships between sargassum events and two key pelagic species, dolphinfish and flyingfish, using official catch and fishing effort data held by the fisheries divisions of the Eastern Caribbean. It is hoped that this investigation will contribute important data and information towards developing a model to describe pelagic sargassum growth and transport within the North Equatorial Recirculation Region (NERR) and Eastern Caribbean.

It is anticipated that the outcomes of investigating the relationship between sargassum events and key pelagic species will inform ongoing assessments of Eastern Caribbean islands fisheries sector sensitivities to climate change. More importantly, it will also inform mitigative action and adoption of adaptive strategies within the pelagic fishery sector and by extension the development of climate change adaptive strategies in support of fisheries sustainability in the Eastern Caribbean.

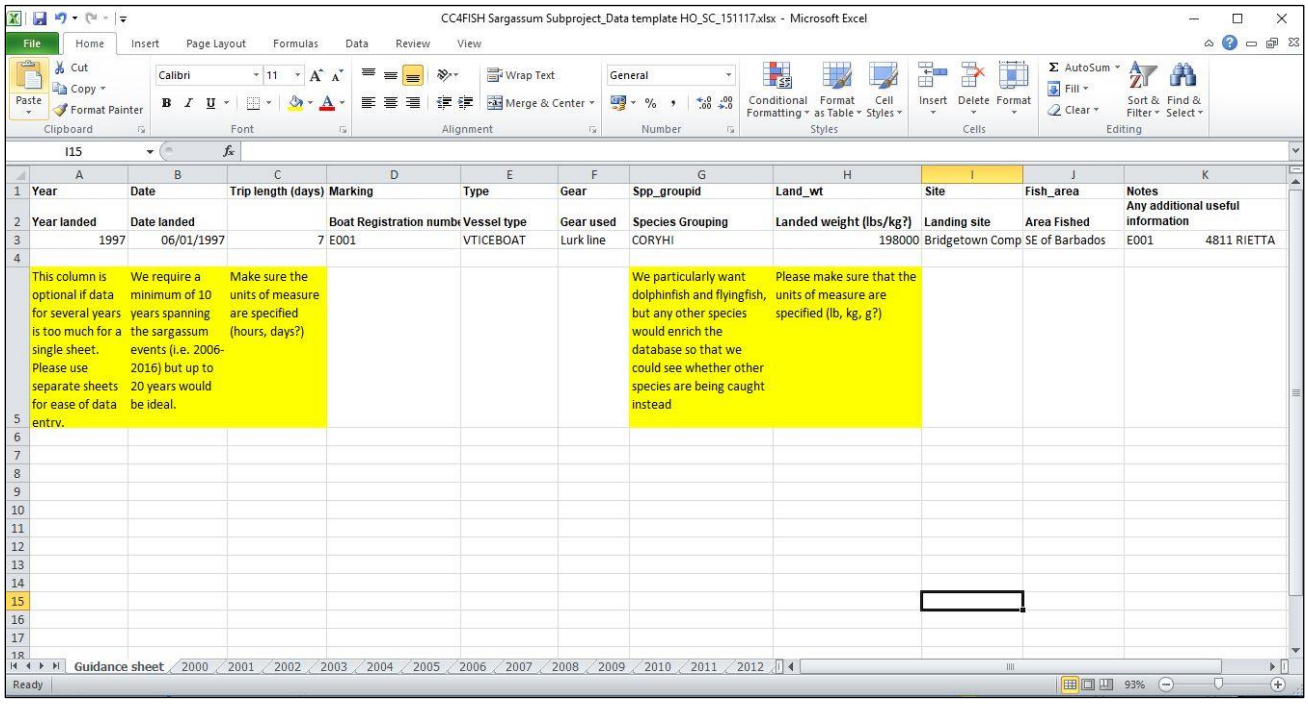
This summary report documents our efforts to procure official catch and effort data for flyingfish and dolphinfish from the fisheries divisions in the Eastern Caribbean. The report outlines the data procurement process, a description of datasets and a brief discussion of next steps.

[1] **Monnereau, I., R. Mahon, P. McConney, L. Nurse, R. Turner and H. Vallès**. 2015. *Vulnerability of the fisheries sector to climate change impacts in Small Island Developing States and the Wider Caribbean*. Centre for Resource Management and Environmental Studies, The University of the West Indies, Cave Hill Campus, Barbados. CERMES Technical Report No. 77: 81pp.

2. Data procurement process

Formal data request letters (see appendix) were distributed via email on October 16th and 17th, 2017 to the fisheries management authorities in Antigua, Barbados[2], Grenada, Saint Lucia, St. Kitts and Nevis, St. Vincent and the Grenadines, and Trinidad and Tobago. The data request letter was accompanied by the Sargassum Subproject Announcement (see appendix) which detailed a short synopsis of the proposed research including objectives and expected outputs. In the case of Dominica, the data request letter was purposefully delayed (sent on the November 20th, 2017), in light of the significant damage to the Fisheries Division caused by Hurricane Maria.

Several follow-up emails, phone calls and in-person visits were made to remind CC4FISH participating countries of the data submission request. A data template (Figure 1) was also shared on November 21st, 2017 as guidance on the required data fields. The guidance sheet provided also included an example to guide data preparation efforts. Table 1 outlines the dates of submission for each country so far. Data submissions were made via email with Microsoft Excel files attached. There are two cases where data were not procured, and a third case, Dominica, where data are said to be available but the delay in providing them is likely due to challenges with data recovery and other demands as a result of Hurricane Maria.



	A	B	C	D	E	F	G	H	I	J	K
1	Year	Date	Trip length (days)	Marking	Type	Gear	Spp_groupid	Land_wt	Site	Fish_area	Notes
2	Year landed	Date landed		Boat Registration numbe	Vessel type	Gear used	Species Grouping	Landed weight (lbs/kg?)	Landing site	Area Fished	Any additional useful information
3	1997	06/01/1997	7	E001	VTICEBOAT	Lurk line	CORYHI	198000	Bridgetown Comp	SE of Barbados	E001 4811 RIETTA
4											
5	This column is optional if data for several years is too much for a single sheet. Please use separate sheets for ease of data entry.	We require a minimum of 10 years spanning the sargassum events (i.e. 2006-2016) but up to 20 years would be ideal.	Make sure the units of measure are specified (hours, days?)				We particularly want dolphinfish and flyingfish, but any other species would enrich the database so that we could see whether other species are being caught instead	Please make sure that the units of measure are specified (lb, kg, g?)			
6											
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Figure 1: Data template guidance sheet

[2] Although Barbados is not a CC4FISH participating country, they expressed an interest in collaborating on the sargassum subproject given the importance of the pelagic fishery to their economy and the significant impacts that occurred as a result of sargassum influxes.

Table 1: Data Submission Timeline

	Country	Data Submission Date
1.	Antigua	No data available (species not targeted) Correspondence dated November 23rd, 2017
2.	Barbados	December 27th, 2017
3.	Dominica	Awaiting data
4.	Grenada	December 11th, 2017
5.	Saint Lucia	December 20th, 2017
6.	Saint Kitts and Nevis	December 12th, 2017
7.	Saint Vincent and the Grenadines	October 25th, 2017
8.	Trinidad and Tobago	Unable to provide data (Tobago) Correspondence dated January 30th, 2018 February 1st, 2018 (Trinidad) February 8th, 2018 (Trinidad)

3. Data description

In most cases, data submitted by the CC4FISH participating countries did not conform to the data template shared. Only Barbados and Trinidad shared a time-series dataset that was closely aligned to the data fields requested. Table 2 below summarizes the data procured and offers a brief description of the variables found in each dataset. More details will be provided in the sections that follow.

Table 2: Overview of data description

	Country	Data Range	Short data description
1.	Antigua	No data available	
2.	Barbados	1997 – 2016	Estimated landings per trip and landing site for flyingfish, dolphinfish and wahoo.
3.	Dominica	Awaiting Data	
4.	Grenada	2012 – 2016 (2013 not included)	Estimated monthly landings for flyingfish and dolphinfish per landing site
5.	Saint Lucia	2006 – 2016	Estimated yearly fish landings by species group and site Estimated value of fish landed Estimated total number of fishing trips per site
6.	Saint Kitts and Nevis	1995 – 2016	Yearly landings totals for

	Country	Data Range	Short data description
			dolphinfish and flyingfish
7.	Saint Vincent and the Grenadines	2000 – 2016	Estimated monthly landings for dolphinfish and flyingfish
8.	Trinidad and Tobago	1998 – 2016 2002 – 2016 Tobago unable to provide data at this time	Estimated total landings for dolphinfish and flyingfish from the Trinidad artisanal and trawl fleets Estimated landings per trip and landing site for dolphinfish from the Trinidad longline fleet

3.1 Antigua and Barbuda

We received an email from the Chief Fisheries Officer on November 23rd, 2017 in response to our data request. Her response is documented below:

"The data that you have requested is not available. Antigua and Barbuda is predominantly a demersal reef base fishery (lobster, conch, reef fish,). We are only now diversifying into the pelagics using FADs."

The fact that Antigua and Barbuda are now diversifying into pelagics provides an opportunity for a national intervention to develop a comprehensive data collection and storage system for pelagics. The data template shared may offer some guidance on the data fields that could be integrated.

3.2 Barbados

Colleagues from the Fisheries Division of Barbados provided a daily time-series dataset for the period 1997 to 2016. The data shared were closely aligned to the data template developed for guidance. Only two data fields were not accounted for over the entire period. Gear used was only available for the period 2006-2016. No data on trip length or area fished were made available for the entire period. Data fields can be seen in Appendix IV.

It may be possible to estimate the trip length based on the vessel type given the knowledge that currently exists about the fishery. The same is true for the type of gear used which can also be deduced from the data that exists from 1997-2006.

This dataset is the most comprehensive submission we have received to date. Some data cleaning and preparation may be necessary before calculating catch per unit effort (CPUE). This index will allow the relationship with sargassum events to be investigated.

3.3 Dominica

We received several positive email communications from the fisheries division in Dominica since our initial data request. However, we have not yet received a data submission. We suspect that data recovery efforts after Hurricane Maria may be taking longer than expected.

3.4 Grenada

The dataset submitted by the fisheries division in Grenada on December 11th, 2017, archives estimated monthly landings for flyingfish and dolphinfish per landing site (n= 13) for five years (2012, 2014, 2015, 2016, 2017). The estimate value was also provided per landing site (see Appendix IV). Unfortunately no effort data were submitted.

3.5 Saint Lucia

Data received on December 20th, 2017 from the Department of Fisheries in Saint Lucia showed records for the period 2006-2016 (see Appendix IV). The dataset archived estimated yearly fish landings by species group at each landing site (n= approx.17). The estimated value of fish landed was also provided. As it relates to effort data, estimated total number of fishing trips per year were given for each landing site.

3.6 Saint Kitts and Nevis

On December 12th, 2017, we received yearly dolphinfish landings for the period 1995-2016 (see Appendix IV). Unfortunately, no fishing effort data were submitted.

3.7 Saint Vincent and the Grenadines

The Saint Vincent fisheries division submitted monthly estimated flyingfish and dolphinfish landings for the period 2000-2016 on October 25th, 2017 (see Appendix IV). Unfortunately no effort data were provided.

3.8 Trinidad and Tobago

We received an official correspondence from the Tobago House of Assembly on January 30th, 2018 (see Appendix III) informing that the Division is unable to supply data on flyingfish and dolphinfish at this time. This letter came after several email and telephone communications with the most senior Fisheries Officer at the Department of Marine Resources and Fisheries in Tobago.

On February 1st, 2018, we received estimated total landings data for dolphinfish and flyingfish per trip from the Trinidad artisanal and trawl fleets. The data shared were closely aligned to the data template developed for guidance. Data fields for the period 1998 – 2016 can be seen in Appendix IV.

A week later on February 8th, 2018, we received estimated landings data for dolphinfish per trip from the Trinidad and Tobago longline fleet. Data fields provided for the period 2002 – 2016 can be seen in Appendix IV.

4. Discussion

We have documented so far in this report the existing catch and fishing effort data procured from six Fisheries Divisions in the Eastern Caribbean. Only three of the six divisions shared fishing effort data and in one instance the data were not disaggregated by species. In most cases, data submitted were summary statistics used for estimating the value of fish landed and therefore too coarse for an in-depth examination of relationships with sargassum events. Informal discussions with fisheries officers revealed

that fishing effort data were not as readily available as catch data and monitoring and surveillance systems needed to be improved. The dearth of comprehensive catch and fishing effort datasets may suggest that there are still challenges with data collection at the national level.

The data procurement process uncovered several barriers to the delivery of the sargassum subproject. The lack of comprehensive catch and effort datasets from across the Eastern Caribbean hinders the thorough investigation of the relationship between sargassum influxes and key pelagic species in this region. We also found that countries do not have or are unwilling to share appropriate data, and that data are not supplied in a timely manner or in the level of detail required. In addition, some data are still in analogue form and need to be digitized. Data rescue efforts may need to be considered in the near future to support research aimed at mitigative action and adoption of adaptive strategies within the pelagic fishery sector.

5. Lessons learnt

Our effort to procure catch and effort datasets for flyingfish and dolphinfish did not meet our expectations given the dearth of comprehensive datasets acquired. It did, however, offer profound insights into the gaps that need to be filled to support research that can inform climate change adaptive strategies.

We've learnt that a sustained capacity building effort will be needed for the key players involved in fisheries data collection and management in the Eastern Caribbean. In some cases, efforts will have to start at the very basic level of awareness-raising to the importance of data in informing ongoing assessments of fisheries sector sensitivities to climate change. Recognition that this is a long-term agenda that may take years to generate impact at the regional level is important. Having a long-term outlook and commitment to the long-haul can help to manage unrealistic short- or medium-term expectations.

6. Next steps

Before we explore the relationship between the data procured and sargassum landing amounts, we intend to clean the data to remove any inaccuracies and duplicates. Next we will harmonize the data into one cohesive dataset that will be stored in a simple open-source relational database management system. When this process is completed, we will calculate catch per unit effort (CPUE) using the country datasets which are more comprehensive. This will allow us to explore correlations with sargassum landing amounts. We also intend to analyse the other datasets to examine broader patterns. Based on the outcome of these analyses, we will determine if we will explore the relationship between the datasets and oceanographic variables such as sea surface temperatures. It is anticipated that if this methodology yields successful outcomes, then the data can be used to support the development of a model to assess sargassum impacts on dolphinfish and flyingfish populations in the Eastern Caribbean.

7. Appendices

Appendix 1: Data request letter

Centre for Resource Management and Environmental Studies
FACULTY OF SCIENCE AND TECHNOLOGY
THE UNIVERSITY OF THE WEST INDIES
CAVE HILL CAMPUS, BARBADOS

TEL: (246) 417-4316 cermes@cavehill.uwi.edu
FAX: (246) 424-4204 www.cavehill.uwi.edu/cermes

Mr. Crafton Isaac
Chief Fisheries Officer
Fisheries Division
Ministry Of Agriculture, Forestry, Fisheries and the Environment
Ministerial Complex, Botanical Gardens
St. George's
Grenada

October 16th, 2017

Re: Data request under the CC4FISH project for the development of a model to assess sargassum impacts on the dolphinfish and flyingfish populations

Dear Mr. Isaac,

This letter serves to express our interest in collaborating with the Fisheries Division in Grenada to develop a model to assess sargassum impacts on the dolphinfish and flyingfish populations. This initiative forms a part of the approved subprojects under the FAO/GEF Climate Change Adaptation in the Eastern Caribbean Fisheries Sector (CC4FISH) project.

As I am sure you are aware, the overall objective of the CC4FISH project is to increase resilience and reduce vulnerability to climate change impacts in the Eastern Caribbean Fisheries Sector, through introduction of adaptation measures in fisheries management and capacity building of fisherfolk and aquaculturists. The ultimate aim is to create better understanding and awareness of climate change vulnerability, improve resilience of fisherfolk, fisherfolk organizations and aquaculturists, and improve governance by mainstreaming climate change adaptation in multilevel fisheries governance.

The 'Sargassum Subproject' specifically seeks to develop a better understanding of: (1) how, when and why sargassum influxes occur in the Eastern Caribbean, and (2) how they might affect our key pelagic fishery species (particularly dolphinfish and flyingfish) and in turn the fisheries that depend on them. We enclose herewith a one-pager summarising this subproject and its expected outputs for your further information. For the later question, we will need to examine time-series of catch and fishing effort data for as many of the Eastern Caribbean islands as possible.

We are therefore requesting your participation in this Sargassum Subproject in the first instance by making your country's fish landings and fishing effort data available to us. Specifically, we need data for both flyingfish and dolphinfish for at least the last 10 years (2006-2016) to capture the period before and since the first serious sargassum influxes of 2011. If the data are available for a longer time period (e.g. 20 years), that would be even better as we need long time-series to begin modelling 'normal' interannual variability.

CERMES has engaged a research assistant to undertake the work of this subproject, Dr Shelly-Ann Cox, who has been working on fisheries issues in the Eastern Caribbean for a number of years as a student of Patrick McConney, and most recently has been working on climate change issues with the Caribbean Institute for Meteorology and Hydrology (CIMH). As such, I would like to formally introduce her to you, and hope that you will be able to assist her with this request.

As soon as we hear back from you, regarding your willingness to collaborate, Shelly-Ann will be in touch regarding details and data templates.

Looking forward to your usual favourable response as we work towards a Caribbean resilient to climate risks.

Yours sincerely

…….

Hazel A. Oxenford, PhD

Professor of Marine Ecology and Fisheries

Email: hazel.oxenford@cavehill.uwi.edu

Appendix 2: CC4FISH sargassum subproject announcement

CC4FISH SARGASSUM SUBPROJECT

Modeled Growth and Transport of Pelagic *Sargassum* Influxes to the Eastern Caribbean and Implications for Pelagic Fisheries

In Eastern Caribbean countries, the fisheries sector is critically important for livelihoods, income, food security and poverty reduction. It is also highly vulnerable to climate change and climate variability, which is being primarily driven by human activities at the global scale. In 2011 and 2014 unprecedented quantities of pelagic sargassum washed into coastal waters and stranded along coastlines of Eastern Caribbean states. These events have triggered much speculation among local stakeholders on the possible long-term implications for local fisheries, given that such events seem likely to be the 'new norm'. Discussion at local and regional levels regarding sargassum has considered a variety of issues from loss of fishing time and income, to the introduction of alien species. However, of particular concern is the significant reduction in flyingfish catches that have so far coincided with these sargassum events, and the very high catches of extremely young dolphinfish from around the floating sargassum. The timing, frequency and severity of sargassum events in the future, and the nature of the relationships between sargassum influxes and key fishery species need to be clearly understood, to inform future policy and management decisions in the fishery sector and develop adaptive response measures to ensure sustainability of fisherfolk livelihoods.

Subproject objectives:

1. Develop a model to describe pelagic sargassum growth and transport within the North Equatorial Recirculation Region and the Eastern Caribbean using a numeric hydrological circulation model (HYCOM), incorporating time-scaled pelagic sargassum growth rates.
2. Investigate the relationships between sargassum events and two key pelagic species, dolphinfish and flyingfish, using official catch and effort data held by the fisheries divisions of the Eastern Caribbean islands over the past decade, and targeted interviews with pelagic fishers in the region.

Expected outputs:

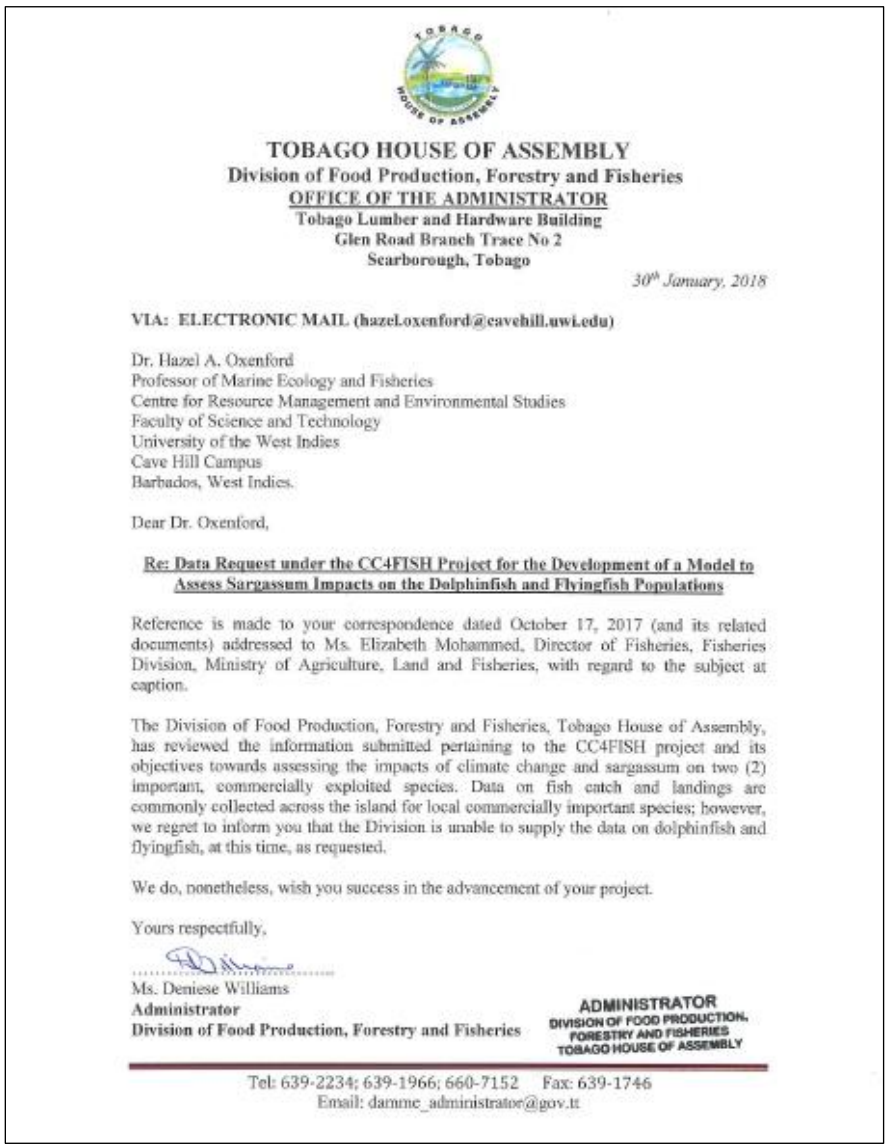
1. Contribute to overall predictive/forecast capabilities pertaining to regional, large-scale pelagic sargassum invasive events;
2. Inform ongoing assessments of Eastern Caribbean islands fisheries sector sensitivities to climate change;

3. Inform development of climate change adaptive strategies in support of fisheries sustainability in the Eastern Caribbean; and
4. Inform mitigative action and adoption of adaptive strategies within the pelagic fishery sector.

For more information: Hazel Oxenford (hazel.oxenford@cavehill.uwi.edu), Shelly-Ann Cox (shellyanncox@icloud.com), Jim Franks (jim.franks@usm.edu) and Don Johnson (donald.r.johnson@usm.edu)

Food and Agriculture Organization of the United Nations

Appendix 3: Correspondence received from Tobago house of assembly



TOBAGO HOUSE OF ASSEMBLY
Division of Food Production, Forestry and Fisheries
OFFICE OF THE ADMINISTRATOR
Tobago Lumber and Hardware Building
Glen Road Branch Trace No 2
Scarborough, Tobago

30th January, 2018

VIA: ELECTRONIC MAIL (hazeLoxenford@cavehill.uwi.edu)

Dr. Hazel A. Oxenford
Professor of Marine Ecology and Fisheries
Centre for Resource Management and Environmental Studies
Faculty of Science and Technology
University of the West Indies
Cave Hill Campus
Barbados, West Indies.

Dear Dr. Oxenford,

Re: Data Request under the CC4FISH Project for the Development of a Model to Assess Sargassum Impacts on the Dolphinfish and Flyingfish Populations

Reference is made to your correspondence dated October 17, 2017 (and its related documents) addressed to Ms. Elizabeth Mohammed, Director of Fisheries, Fisheries Division, Ministry of Agriculture, Land and Fisheries, with regard to the subject at caption.

The Division of Food Production, Forestry and Fisheries, Tobago House of Assembly, has reviewed the information submitted pertaining to the CC4FISH project and its objectives towards assessing the impacts of climate change and sargassum on two (2) important, commercially exploited species. Data on fish catch and landings are commonly collected across the island for local commercially important species; however, we regret to inform you that the Division is unable to supply the data on dolphinfish and flyingfish, at this time, as requested.

We do, nonetheless, wish you success in the advancement of your project.

Yours respectfully,

Ms. Deniese Williams
Administrator
Division of Food Production, Forestry and Fisheries

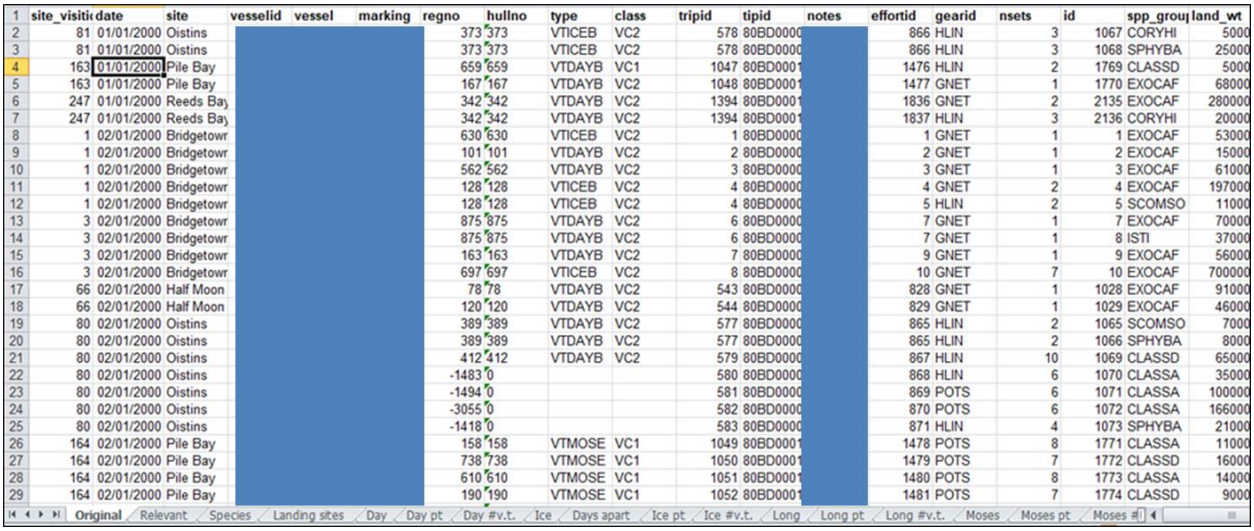
ADMINISTRATOR
DIVISION OF FOOD PRODUCTION, FORESTRY AND FISHERIES
TOBAGO HOUSE OF ASSEMBLY

Tel: 639-2234; 639-1966; 660-7152 Fax: 639-1746
Email: damme_administrator@gov.tt

Appendix 4: Screenshots of datasets procured

Barbados

1997 – 2006



	site_visiti	date	site	vesselid	vessel	marking	regno	hullno	type	class	tripid	tipid	notes	effortid	gearid	nsets	id	spp_grou	land_wt
2	81	01/01/2000	Oistins	[redacted]			373	373	VTICEB	VC2	578	80BD0000		866	HLIN	3	1067	CORYHI	5000
3	81	01/01/2000	Oistins				373	373	VTICEB	VC2	578	80BD0000		866	HLIN	3	1068	SPHYBA	25000
4	163	01/01/2000	Pile Bay				659	659	VTDAYB	VC1	1047	80BD0001		1476	HLIN	2	1769	CLASSD	5000
5	163	01/01/2000	Pile Bay				167	167	VTDAYB	VC2	1048	80BD0001		1477	GNET	1	1770	EXOCAF	68000
6	247	01/01/2000	Reeds Bay				342	342	VTDAYB	VC2	1394	80BD0001		1836	GNET	2	2135	EXOCAF	280000
7	247	01/01/2000	Reeds Bay				342	342	VTDAYB	VC2	1394	80BD0001		1837	HLIN	3	2136	CORYHI	20000
8	1	02/01/2000	Bridgetowr				630	630	VTICEB	VC2	1	80BD0000		1	GNET	1	1	EXOCAF	53000
9	1	02/01/2000	Bridgetowr				101	101	VTDAYB	VC2	2	80BD0000		2	GNET	1	2	EXOCAF	15000
10	1	02/01/2000	Bridgetowr				562	562	VTDAYB	VC2	3	80BD0000		3	GNET	1	3	EXOCAF	61000
11	1	02/01/2000	Bridgetowr				128	128	VTICEB	VC2	4	80BD0000		4	GNET	2	4	EXOCAF	197000
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20	80	02/01/2000	Oistins				389	389	VTDAYB	VC2	577	80BD0000		865	HLIN	2	1066	SPHYBA	8000
21	80	02/01/2000	Oistins				412	412	VTDAYB	VC2	579	80BD0000		867	HLIN	10	1069	CLASSD	65000
22	80	02/01/2000	Oistins				-1483	0			580	80BD0000		868	HLIN	6	1070	CLASSA	35000
23	80	02/01/2000	Oistins				-1494	0			581	80BD0000		869	POTS	6	1071	CLASSA	100000
24	80	02/01/2000	Oistins				-3055	0			582	80BD0000		870	POTS	6	1072	CLASSA	166000
25	80	02/01/2000	Oistins				-1418	0			583	80BD0000		871	HLIN	4	1073	SPHYBA	21000
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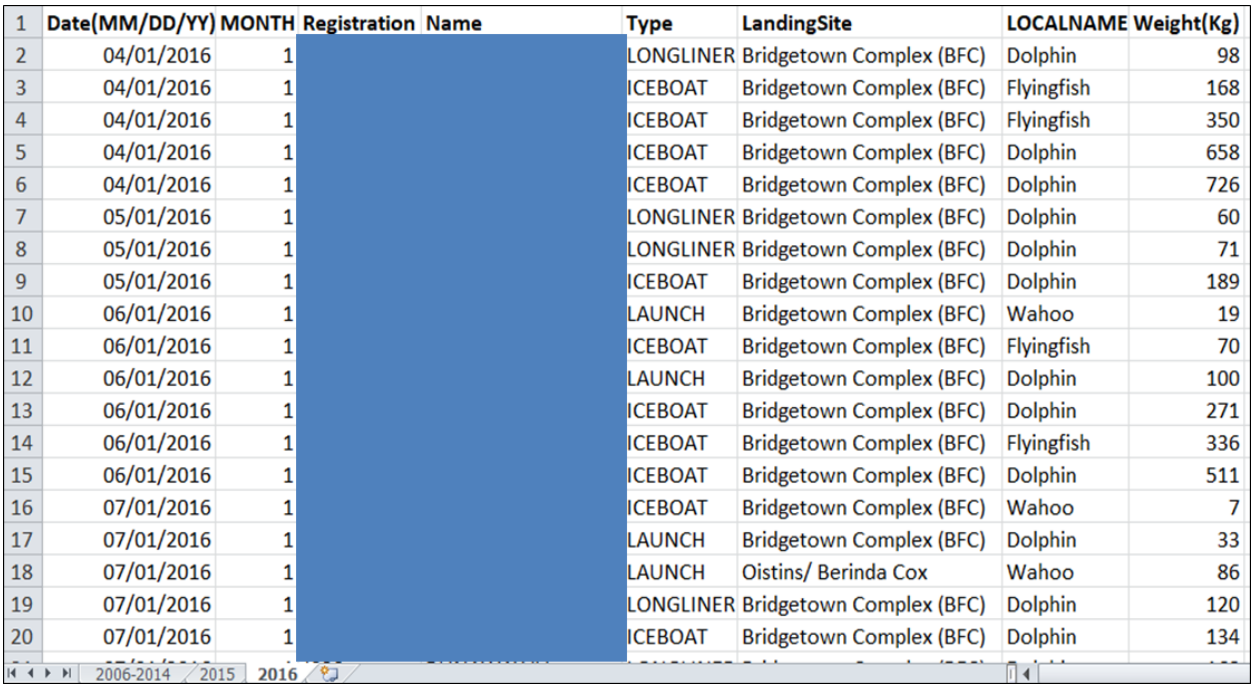
27	164	02/01/2000	Pile Bay				738	738	VTMOSE	VC1	1050	80BD0001		1479	POTS	7	1772	CLASSD	16000
28	164	02/01/2000	Pile Bay				610	610	VTMOSE	VC1	1051	80BD0001		1480	POTS	8	1773	CLASSA	14000
29	164	02/01/2000	Pile Bay				190	190	VTMOSE	VC1	1052	80BD0001		1481	POTS	7	1774	CLASSD	9000

Original | Relevant | Species | Landing sites | Day | Day pt | Day #v.t. | Ice | Days apart | Ice pt | Ice #v.t. | Long | Long pt | Long #v.t. | Moses | Moses pt | Moses #

2006 - 2016



	Date(MM/DD/YY)	MONTH	Registration	Name	Type	LandingSite	LOCALNAME	Weight(Kg)
2	04/01/2016	1	[redacted]		LONGLINER	Bridgetown Complex (BFC)	Dolphin	98
3	04/01/2016	1			ICEBOAT	Bridgetown Complex (BFC)	Flyingfish	168
4	04/01/2016	1			ICEBOAT	Bridgetown Complex (BFC)	Flyingfish	350
5	04/01/2016	1			ICEBOAT	Bridgetown Complex (BFC)	Dolphin	658
6	04/01/2016	1			ICEBOAT	Bridgetown Complex (BFC)	Dolphin	726
7	05/01/2016	1			LONGLINER	Bridgetown Complex (BFC)	Dolphin	60
8	05/01/2016	1			LONGLINER	Bridgetown Complex (BFC)	Dolphin	71
9	05/01/2016	1			ICEBOAT	Bridgetown Complex (BFC)	Dolphin	189
10	06/01/2016	1			LAUNCH	Bridgetown Complex (BFC)	Wahoo	19
11	06/01/2016	1			ICEBOAT	Bridgetown Complex (BFC)	Flyingfish	70
12	06/01/2016	1			LAUNCH	Bridgetown Complex (BFC)	Dolphin	100
13	06/01/2016	1			ICEBOAT	Bridgetown Complex (BFC)	Dolphin	271
14	06/01/2016	1			ICEBOAT	Bridgetown Complex (BFC)	Flyingfish	336
15	06/01/2016	1			ICEBOAT	Bridgetown Complex (BFC)	Dolphin	511
16	07/01/2016	1			ICEBOAT	Bridgetown Complex (BFC)	Wahoo	7
17	07/01/2016	1			LAUNCH	Bridgetown Complex (BFC)	Dolphin	33
18	07/01/2016	1			LAUNCH	Oistins/ Berinda Cox	Wahoo	86
19	07/01/2016	1			LONGLINER	Bridgetown Complex (BFC)	Dolphin	120
20	07/01/2016	1			ICEBOAT	Bridgetown Complex (BFC)	Dolphin	134

2006-2014 | 2015 | 2016

Grenada

	JANUARY														
2	PELAGIC SPECIE	SCIENTIFIC NAMES	Grenville	Sauteurs	Duquesne	Waltham	Victoria	Gouyave	Melville St.	NORDOM	S.F.A.	S.I.F.H.	Windward	Carriacou & I	Total
3	Great barracuda	Sphyraena barracuda	24,979.50	45.50			28.00	605.50	1,876.00		7.00		7.00	1,289.58	**28,838.08**
4	Common dolphinfish	Coryphaena hippurus	5,849.20			232.40	91.00	134.40	212.80		781.20	389.20			**7,690.20**
5	pompano dolphinfish							1,685.60							**1,685.60**
6	Black Jack	Caranx lugubris													-
7	Spanish mackerel	Scomberomorus maculat	7.00					47.25	92.75						**147.00**
8	CeroSpanish Mackerel		14.00				36.75								**50.75**
9	King mackerel	Scomberomorus cavalla	299.60			128.80			278.60		530.60	235.62			**1,473.22**
10	Atlantic bonito	Sarda sarda												474.25	**474.25**
11	Southern sennet	Sphyraena barracuda													-
12	Wahoo	Acanthocybium solandri	8,926.40			110.60	12.60	674.80	429.80		21.00	183.40		184.80	**10,543.40**
13	Yellow fin tuna	Thunnus albacares	3,256.40			1,180.20	562.80	2,161.60	324.80	849.80	8,220.80	9,401.98			**25,958.38**
14	Northern bluefin tuna														-
15	Little tunny	Little tunny													-
16	Atlantic sailfish	Istiophorus albicans	259.00			3,283.00	2,097.20	23,293.20	175.00		6,273.40	2,769.48			**38,150.28**
17	Blackfin tuna	Thunnus atlanticus	34,504.75			129.50	35.00	1,118.25	1,772.75		122.50				**37,682.75**
18	Skip jack tuna	Katsuwonus pelamis	5,006.75			29.75		152.25						221.90	**5,410.65**
19	Bullet tuna	Auxis rochei													-
20	Blue marlin	Makaira nigricans	271.60			170.80		64.40			1,705.20	627.48			**2,839.48**
21	White Marlin						116.20	890.40			931.00	470.82			**2,408.42**
22	Rainbow runner	Elagatis bipinnulatus	383.25					47.25	722.75					43.75	**1,197.00**
23	Sword fish	Xiphias gladius					33.60				627.20	559.16			**1,219.96**
24	Frigate tuna	Auxis thazard							21.00						**21.00**
25	Bigeye tuna	Thunnus obesus													-
26	Shark	Carcharhinidae	175.00					402.50	752.50		822.50	492.45			**2,644.95**
27	Albacore	Thunnus alalunga									119.00	1,350.13			**1,469.13**
28	Flying fish	Exocotidae													-
29	Triple tail														-
30	**Sub-Total**		**83,932.45**	**45.50**	-	**5,265.05**	**3,013.15**	**31,277.40**	**6,658.75**	**849.80**	**20,161.40**	**16,479.72**	**7.00**	**2,214.28**	**169,904.49**
31	False herring	Harengula clupeola													-
32	Atlantic thread herring	Opithonema oligrnum													-
33	Brazilian sardine	Sardinella brasiliensis													-
34	CavalliJack	Caranx lutus	553.00	547.75			220.50	969.50	498.75				3.50	732.73	**3,525.73**
35	Moon fish	Carangidae							185.50						**185.50**
36	Keeltail needlefish	Platybelone argalus						42.00							**42.00**
37	Pound scad	Decapterus punctatus		1,370.25											**1,370.25**
38	Bigeye scad	Selar crumenopthalmus					787.50								**787.50**

PRODUCTION | SUMMARY | GRAPH | Sheet1

Saint Kitts and Nevis

1995 - 2016 Dolphinfish Catch Data

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Dolphin (*Coryphaena*	5,890	29,250	43,060	74,970	28,620	57,250	57,570	87,540	34,850	58,190	77,830	32,960	68,490	101,150	45,210	19,000	43,400	36,370	123,240	41560	62740	40800

Sheet1 | Sheet2 | Sheet3

Saint Lucia

Preliminary Estimated Fish Landings for JAN - DEC 2016

Table 1: Estimated fish landings for Jan - Dec 2016

Figures recorded in metric tons

SITE	TUNAS	DOLPHINFISH	WAHOO	SNAPPER	FLYINGFISH	SHARK	LOBSTER	CONCH	LIONFISH	BLUE MARLIN	WHITE MARLI	OTHER	TOTAL
ANSE LA RAY	9.79	0.31	0.03	1.47	0.00	0.04	0.11	0.002	0.15	0.80	0.00	49.12	61.82
CASTRIES	22.91	7.24	0.64	2.99	0.05	0.04	0.00	0.00	0.03	2.34	0.00	56.04	92.28
CHOISEUL	26.35	8.64	3.94	2.27	0.03	0.14	0.79	0.00	0.49	0.28	0.00	13.78	56.70
DENNERY	100.91	142.60	54.10	5.83	1.26	0.18	1.12	1.13	0.89	20.23	0.22	31.37	359.84
GROS ISLET	2.41	1.64	0.09	0.13	0.01	0.33	2.81	77.35	0.16	0.00	0.00	9.00	93.91
LABORIE	35.59	4.09	0.74	3.27	0.00	0.02	0.17	10.26	0.91	0.00	0.00	16.74	71.78
MICOUD	43.19	29.30	8.40	1.04	0.00	0.09	0.00	0.00	0.52	15.10	0.14	16.15	113.93
SAVANNES B	8.26	16.09	4.60	0.82	0.00	0.49	1.57	0.02	0.51	0.00	0.01	27.55	59.92
SOUFRIERE	14.78	0.56	0.05	0.16	0.00	0.00	0.00	0.00	0.00	0.55	0.00	20.56	36.66
VIEUX FORT	158.43	199.21	67.38	13.00	0.00	0.26	2.46	2.99	0.00	41.08	0.00	45.31	530.12
OTHERSITES	94.98	25.67	6.63	7.65	0.00	0.13	0.41	0.00	1.90	11.06	0.09	106.87	255.40
TOTAL	517.60	435.34	146.59	38.63	1.35	1.71	9.44	91.74	5.56	91.44	0.47	392.49	1732.36

Table 2: Summary of estimated value of fish landed for Jan-Dec 2016 based on ex-vessel value

Figures expressed in EC $

SITE	TUNAS	DOLPHINFISH	WAHOO	SNAPPER	FLYINGFISH	SHARK	LOBSTER	CONCH	LIONFISH	BLUE MARLIN	WHITE MARLI	OTHER	TOTAL
ANSE LA RAY	168736.00	5476.00	403.00	25937.00	0.00	604.00	3347.00	57.00	2354.00	14148.00	0.00	375914.05	596976.05
CASTRIES	404833.00	158326.00	12193.00	76913.00	352.00	675.00	0.00	0.00	548.00	39427.00	0.00	476979.18	1170246.18
CHOISEUL	462298.00	162384.00	66006.00	48124.00	233.00	2043.00	30841.00	0.00	5752.00	3748.00	0.00	213973.21	995402.21
DENNERY	1424809.00	2348192.00	813127.00	122174.00	8295.00	1205.00	34159.00	36737.00	9869.00	271789.00	2853.00	398420.52	5471629.52
GROS ISLET	42810.00	31088.00	1678.00	2384.00	135.00	3602.00	121458.00	2552456.00	3804.00	0.00	0.00	161215.53	3010805.53

2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 **2016**

Saint Vincent and the Grenadines

ESTIMATED DATA ON FISH LANDED AND MARKETED
IN ST. VINCENT AND THE GRENADINES
FOR THE PERIOD JAN - DEC 2000
Weight in Lbs

SCIENTIFIC NAME	SPCODE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Coryphaena hippurus	CORYHI	7,741	25,556	51,969	36,281	21,700	10,620	5,833	1,975	789	50	920	2,035	**165,468**
Exocoetidae	EXOC	0	0	0	0	0	0	0	0	0	0	0	0	**0**
AL		**7,741**	**25,556**	**51,969**	**36,281**	**21,700**	**10,620**	**5,833**	**1,975**	**789**	**50**	**920**	**2,035**	**165,468**

2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2

Trinidad

Artisanal and Trawl Fleets

Report by Year, species, fishing gear, landing site, fishing area, weight and hours for 1998 - 2016							
Year	Species	Fishing Method	Landing Site	Fishing Area	Weight (Lbs)	Hours	Vessel Type
02/01/1998	DOLPHINFISH	TROLLING	BLANCHISSEUSE	BLANCHISSEUSE	6	7	I
02/01/1998	DOLPHINFISH	TROLLING	BLANCHISSEUSE	BLANCHISSEUSE	7	7	NULL
07/01/1998	DOLPHINFISH	FILLET	ERIN	MORNE DIABLO	300	8	NULL
12/01/1998	DOLPHINFISH	TROLLING	BLANCHISSEUSE	BLANCHISSEUSE	5	5	I
12/01/1998	DOLPHINFISH	TROLLING	BLANCHISSEUSE	BLANCHISSEUSE	7	5	I
12/01/1998	DOLPHINFISH	TROLLING	BLANCHISSEUSE	BLANCHISSEUSE	2	5	I
10/02/1998	DOLPHINFISH	FILLET	PORT OF SPAIN	GULF OF PARIA	11	10	I
10/02/1998	DOLPHINFISH	FILLET	PORT OF SPAIN	NORTH COAST	16	15	I
13/02/1998	DOLPHINFISH	MONO FILAMENT	PORT OF SPAIN	NORTH COAST	9	23	I
13/02/1998	DOLPHINFISH	FILLET	PORT OF SPAIN	NORTH COAST	10	15	NULL
14/02/1998	DOLPHINFISH	FILLET	PORT OF SPAIN	NORTH COAST	8	14	NULL
14/02/1998	DOLPHINFISH	FILLET	PORT OF SPAIN	NORTH COAST	10	13	I
14/02/1998	DOLPHINFISH	FILLET	PORT OF SPAIN	NORTH COAST	15	19	NULL

FLYINGFISH | DOLPHINFISH

Trinidad Longline Fleet

Date	DAY	MTH	YEAR	Trip lengt	Marking (	Type	Gear	Spp_grou	Land_wt (	Site	Fish_area	Notes
	20	1	2002	17	B-1-02	LL	LL	CORYHI	71	Chaguaramas	Western Caribbean	1. Dolphinfish is not targeted by the fleet; it is only caught incidentally.
	8	2	2002	16	B-2-02	LL	LL	CORYHI	0	Chaguaramas	Western Caribbean	2. The weights reported here are all dressed weights:
	7	3	2002	20	B-3-02	LL	LL	CORYHI	0	Chaguaramas	Caribbean Sea	the head, tail, fins and entrails are removed from the fish.
	1	4	2002	19	B-4-02	LL	LL	CORYHI	83	Chaguaramas	Eastern Caribbean	3. wrt 'Site': i) National Fisheries Company Limited = NFC
	29	4	2002	17	B-5-02	LL	LL	CORYHI	0	Chaguaramas	Eastern Caribbean	ii) Sea Lots = NP Fishing Complex, Sea Lots
	24	5	2002	20	B-6-02	LL	LL	CORYHI	0	Chaguaramas	Eastern Caribbean	4. wrt 'Fish_area': Atlantic Ocean = North Atlantic = East Atlantic
	30	6	2002	21	B-7-02	LL	LL	CORYHI	27	Chaguaramas	Western Caribbean	5. wrt 'Type' and 'Gear': LL = longline
	28	7	2002	23	B-8-02	LL	LL	CORYHI	0	Chaguaramas	Eastern Caribbean	6. These notes apply to all of the data
	21	8	2002	17	B-9-02	LL	LL	CORYHI	51	Chaguaramas	Eastern Caribbean	
	15	9	2002	20	B-10-02	LL	LL	CORYHI	0	Chaguaramas	Eastern Caribbean	
	9	10	2002	20	B-11-02	LL	LL	CORYHI	0	Chaguaramas	Eastern Caribbean	
	4	11	2002	22	B-12-02	LL	LL	CORYHI	0	Chaguaramas	Eastern Caribbean	
	25	11	2002	19	B-13-02	LL	LL	CORYHI	0	Chaguaramas		
	21	12	2002	20	B-14-02	LL	LL	CORYHI	0	Chaguaramas	Eastern Caribbean	
	9	1	2002	17	E-1-02	LL	LL	CORYHI	0	Chaguaramas	Eastern Caribbean	
	28	1	2002	16	E-2-02	LL	LL	CORYHI	0	Chaguaramas	Tobago	
	26	2	2002	15	E-3-02	LL	LL	CORYHI	79	Chaguaramas	Off Tobago	
	25	3	2002	16	E-4-02	LL	LL	CORYHI	46	Chaguaramas	Eastern Caribbean	
	17	4	2002	16	E-5-02	LL	LL	CORYHI	0	Chaguaramas	Eastern Caribbean	
	14	5	2002	16	E-6-02	LL	LL	CORYHI	21	Chaguaramas	Eastern Caribbean	
	9	6	2002	17	E-7-02	LL	LL	CORYHI	0	Chaguaramas	Eastern Caribbean	
	5	7	2002	17	E-8-02	LL	LL	CORYHI	14	Chaguaramas	Eastern Caribbean	
	29	7	2002	21	E-9-02	LL	LL	CORYHI	0	Chaguaramas	Eastern Caribbean	
	29	8	2002	21	E-10-02	LL	LL	CORYHI	0	Chaguaramas	Eastern Caribbean	

Louanna LM. Martin:
The entries here are reference numbers (each reference number represents a trip) and not the vessel registration numbers. Each alpha code refers to a specific vessel, though.

Guidance sheet | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012