



Food and Agriculture  
Organization of the  
United Nations



# WECAFC-FIRMS Data workshop

TOBAGO, an overview on the  
Fisheries and Marine Resources inventory

*Issues, challenges and lessons learned focusing to data collection, data gaps and deficiencies, and capacity*

Ruth Redman  
Department of Marine Resources and Fisheries  
Tobago House of Assembly

# Outline

## Day 1

- Profile of fisheries and marine resources for Tobago
- Brief overview for the focus fisheries
- Issues, Challenges & Lessons learned

## DAY 2 & 3

- Type of available data for the focus fisheries:
  - Flyingfish
  - Others
- Sources and quality of Information
- Potential indicators in support of the Fisheries Management Plans (FMPs)

# Profile of fisheries and marine resources for Tobago

Geographical overview	National boundaries	Trinidad, Grenada, St. Vincent and the Grenadines, Barbados
<p><b>Maritime Domain</b></p>	<p>Main international agreements (Wikipediaorg, 2016)</p>	<ul style="list-style-type: none"> <li>• International Commission for the Conservation of Atlantic Tunas (ICCAT). Est. In 1969</li> <li>• Constitution of the Food and Agriculture Organization (FAO). Founded in Oct. 1945</li> <li>• The African, Caribbean and Pacific Group of States (ACP). Created by the Georgetown Agreement in 1975</li> <li>• United Nation Convention on the Law of the Sea (UNCLOS). Came into force in 1994.</li> <li>• The Ramsar Convention. Came into force in Dec. 1975</li> <li>• Straddling Fish Stocks Agreement. Adopted in 1995 and came into force in 2001.</li> </ul>
	<p>Joint management plans (Redman, 2016)</p>	<ul style="list-style-type: none"> <li>• The Draft Fisheries Management Bill (2011) is not yet law in Trinidad and Tobago. The Tobago House of Assembly, however, is guided by the Comprehensive Economic Development Plan 2.0 (CEDP 2.0) which guides the Development of Tobago from 2013 to 2017. Each Division formulates a Strategic Plan from this CEDP 2.0. The Division of Agriculture , Marine Affairs, Marketing and the Environment completed its Strategic Plan in October, 2015. (Redman, 2016)</li> </ul>

# Boundaries



[Back](#)

# Profile of fisheries and marine resources for Tobago

Maritime Domain	Joint management plans (Redman, 2016)	<ul style="list-style-type: none"> <li>There is an approved Sub Regional Plan for Flying fish in the Eastern Caribbean. This was cleared for implementation by CRFM member states in May 2014 and involves a consultative process. This has not yet been completed in Trinidad and Tobago.</li> </ul>
General figures on production sector	Catches	Total of listed fishery (2014)- 73.4 tons (based on sampled data) (Redman, 2016)
	Employments	Approximately 400 persons directly (Redman, 2016)
Available fisheries in the country	Local fleet (Redman, 2016)	<ul style="list-style-type: none"> <li>600 open pirogues: 8-10m in length, powered by 1 or 2 outboard motors ranging between 55-120HP</li> <li>&lt;10 mid-water fishing vessels: up to 15m in length, with capability of spending 5-7d at sea</li> <li>1 deep sea pelagic longliner: 20m in length, with capability of spending ~3w at sea</li> </ul>
Stocks assessed		None conducted in last 10 years. Proposal for Flying fish assessment for this year. (Redman, 2016)
Trends and issues	(Redman, 2016)	<ul style="list-style-type: none"> <li>Increase in new registration of open pirogues and new entrants of fishers.</li> <li>Not many females involved in actual fishing, however many are involved in vending.</li> <li>Decrease in landings of Flying fish.</li> <li>Notable increase in landings of yellowfin tuna</li> </ul>

# Brief overview for the focus fisheries in Tobago

*Overall production and percentage thereof of listed fish over 5 year period (sampled data)*

Fishery	2010 (%)	2011 (%)	2012 (%)	2013 (%)	2014 (%)
<b>Flyingfish</b>	71	72	44.2	75.5	51.5
<b>Mahi mahi “Dolphin”</b>	19.5	14.7	43.6	16.9	40.9
<b>Tuna</b>	5.4	9.2	6.4	2.7	5.1
<b>Wahoo</b>	4.1	4.1	5.8	5	2.5

Overall production of listed fishery over years					
<b>Tonnes (ton)</b>	72.7	31.6	24.4	53.8	73.4

(Martin, 2016)

# DAY 2-3

*The following slides will be not presented but used in day 2& 3 and for the workshop report)*

# Type of available data for Flyingfish

## **Fishery**

- Fishery area – Can be harvested around the entire island, however, due to the movement of the currents, areas in the North East to South West are preferred. (Phillips, 2016), (King, 2016)
- Characteristics of the fishing ground – Flying fish can be harvested 1—10 miles from shore generally, with reports of harvesting even further. (Phillips, 2016)
- Harvested resources – Adult flying fish
- Means of production – (Phillips, 2016)
  - Flying fish nets- with mesh size of 1” diameter
  - Bait- “Chum”- macerated fish, placed in basket
  - Gas
  - Labour



# Type of available data for Flyingfish

## **Fishery**

- Exploitation- Due to absence of sufficient market for fresh flying fish, there is reluctance to harvest same by the fishers.
- Post-harvest use- Many cottage industries and few established processors fillet and freeze fish for distribution and further use.
- Management- An open fishery, although there are plans for the implementation of the regional flying fish management plan.
- Trend of the fishery- The Seismic survey done ~4 years ago caused a decline in the population of flyingfish; the influx of Sargassum Seaweed in 2015 further exacerbated the situation. (Phillips, 2016)
- Fishery lifecycle- <https://www.youtube.com/watch?v=IR7c8ql7RoM>
  - In adulthood, the fish search for floating object/raft, like a coconut branch that will offer shelter for their eggs. Females lay eggs on raft where males then fertilize them. The spawning of the first fish acts as a catalyst for the other fish to begin spawning.

# Type of available data for Flyingfish

## **Fishery**

- Fishery lifecycle- <https://www.youtube.com/watch?v=IR7c8ql7RoM>
  - Innumerable strands of eggs are laid and fish compete to release eggs in the middle of the raft, at times becoming entangled in the mesh. The raft may sink under the weight of many eggs and entombed fish. However, the sinking raft aids in their protection as they are out of the view of many predators in the depths of the sea.
- Related fisheries- Dolphin, Tuna, Kingfish, Shark (Phillips, 2016)



# Type of available data for: “Dolphin”/ “Mahi Mahi”/ *Coryphaena hippurus*

## **Fishery (Peters, 2015)**

- Fishery area- Can be found around island, usually following smaller schools of fish such as flying fish, and also along FADs (Fishing Aggregating Devices).
- Characteristics of the fishing ground- Harvested along surface in open water.
- Harvested resources- Dolphin fish
- Means of production – Caught by rod and reel or by trolling (hand lines), using the preferred, live bait, or artificial bait. Usually caught while feeding on other smaller fish.
- Exploitation – Contributes 60-100% of income of fishers
- Post-harvest use – Can be sold to 3 wholesalers/ processors or by retail in 17 fish markets, by individual vendors, or by fishers themselves locally.
- Management- An open fishery



# Type of available data for: “Dolphin”/ “Mahi Mahi”/ *Coryphaena hippurus*

## **Fishery (Peters, 2015)**

- Trend of the fishery- Highest catch rate between January- March each year. Fisheries suffered after seismic survey (~4 years ago), Sargassum seaweed invasion (2015) and now declining after over-harvesting by illegal vessels
- Fishery lifecycle- Mature at 3-4 months, with lifespan of 2-3 years in Northern Caribbean and 12-18 months in Southern Caribbean.
- Related fisheries- Tuna, Kingfish, Shark, Flying Fish



# Sources and quality of Information

- King, C., Fisherman (2016, January 5-8). [Personal interview]
- Martin, J., Data Collector, DMRF (2016, January 8). [Personal interview].
- Peters, S., Marine Park Manager (2015). [Personal Communication]
- Phillips, D., Fisherman (2016, January 5-8). [Personal communication]
- Redman, R., Fisheries Development Officer (2016, January 8). [Personal communication].
- Wikipediaorg. (2016). *Wikipediaorg*. Retrieved 13 January, 2016, from [https://en.wikipedia.org/wiki/Category:Treaties\\_of\\_Trinidad\\_and\\_Tobago](https://en.wikipedia.org/wiki/Category:Treaties_of_Trinidad_and_Tobago)

# Potential indicators in support of the Fisheries Management Plans (FMPs)

Fishery indicators		
	Exploitation	Socioeconomic
Indicator Type	<ul style="list-style-type: none"> <li>Catch</li> <li>Effort</li> <li>Fleet Size</li> <li>Production</li> </ul>	<ul style="list-style-type: none"> <li>Economic Performance</li> <li>Employment- Part time/ Full time</li> </ul>
Measure	<ul style="list-style-type: none"> <li>Catch</li> <li>Number of Ports</li> <li>Landed Volume</li> <li>Number Vessels</li> <li>Number Fishing Unit</li> </ul>	<ul style="list-style-type: none"> <li>Landed Value</li> <li>Landed Average Price</li> <li>Number Fishermen</li> </ul>

# Issues, Challenges and Lessons learned

## Issues & Challenges

- Data gaps
  - Fishery statistics (landings, effort, fleet size)
    - Fishers weigh catch as whole instead of weighing by species
  - Socioeconomic data
    - Fishers deliberately withhold information due to social issues
- Technical capacity
  - Proper identification of fish species by standardization of names as fish may go by different names by district and locally.
- Coordination and management of fishery data collection
  - Difficult at times to communicate with fishers to obtain information
  - Road accessibility to landing sites by data collectors
  - Lack of human resources
  - Two levels of authentication needed: Data collectors authenticating data from fishermen, supervisors in office authenticating information from data collectors.

# Issues, Challenges and Lessons learned

## Issues & Challenges

- Data sharing
  - All landing sites not covered by personnel for cumulative data collection and further sharing

## Lessons learned

- Training of data collectors in identification of fish is of paramount importance.
- Arrangements should be made so that regional management arrangements must be implemented .
- Within the last year, division has taken steps to place assistant data collectors at all landing sites to facilitate better communication with fishers as well as guidance and authentication of data.
- Prepare fishers for upcoming management plan for easy transition when this becomes law.

**Thank You!**  
**Gracias!**  
**Merci!**