



**2019 REGIONAL LEATHERBACK BY-CATCH  
PRIORITIZATION WORKSHOP**  
PARAMARIBO, 17 – 18<sup>TH</sup> OF MARCH 2019

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**COUNTRY PRESENTATION:  
SURINAME**

**Organizations: WWF, Fisheries Dept. Suriname,  
ADEKUS, CI-Suriname**

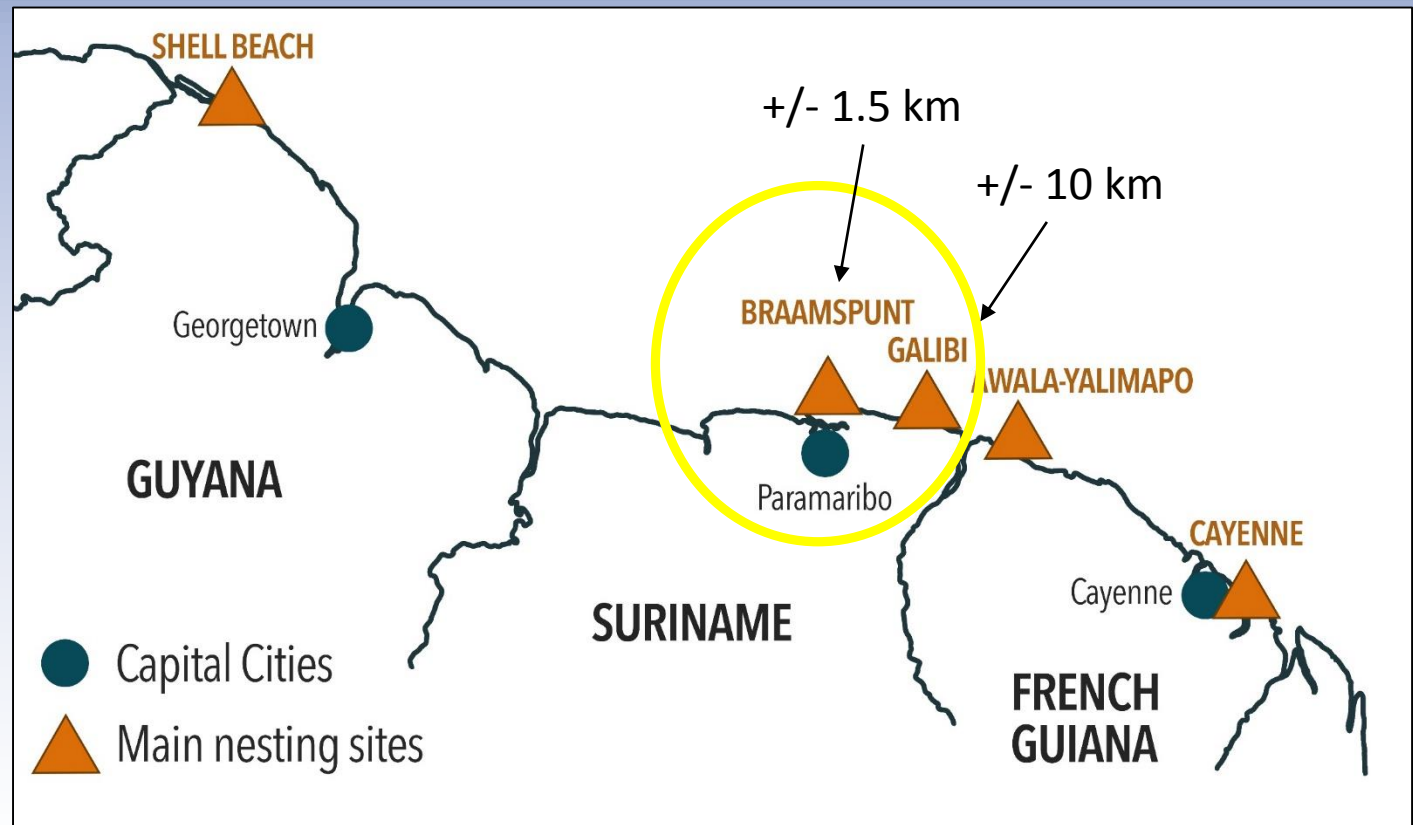
# DESCRIPTION OF SURINAME COASTAL AREA

- 386 km dynamic coastline (movement mudbanks at 1,5 km/year)
- Sandy beaches interspersed with mangroves
- Altering erosional and depositional processes depending on presence of mudbank or interbank zone
- High rates of beach erosion



# LOCATION OF LEATHERBACK NESTING SITES

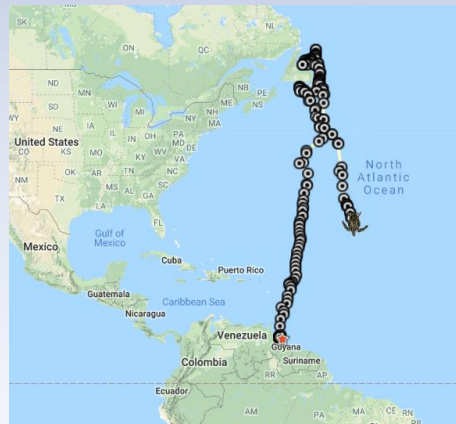
- 2 main nesting beaches: Galibi and Braamspunt
- Remote and only accessible by boat
- Braamspunt is main nesting beach for DC since several years



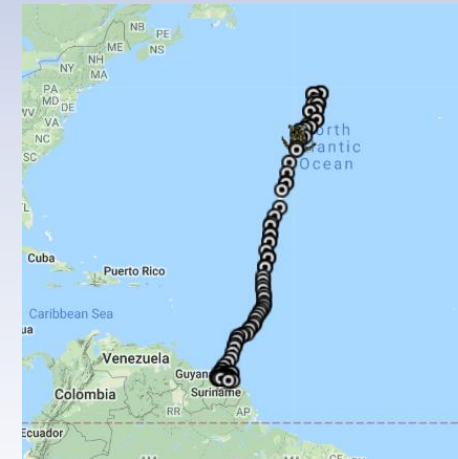
- Nesting beaches located at mouth of rivers: Marowijne (Galibi beaches) and Suriname river (Braamspunt)

# MIGRATION ROUTES

- 2010-2012: Satellite Tracking of Marine Turtles in Guianas
- 10 turtles tracked: Greens and Leatherbacks from Guyana and Suriname
- Sea Turtle Conservancy and WWF



DC - Shell Beach (2012)  
Cumulative distance traveled: 11,023 km  
Average speed since release: 2.29 kph  
Time tracked: 201 days

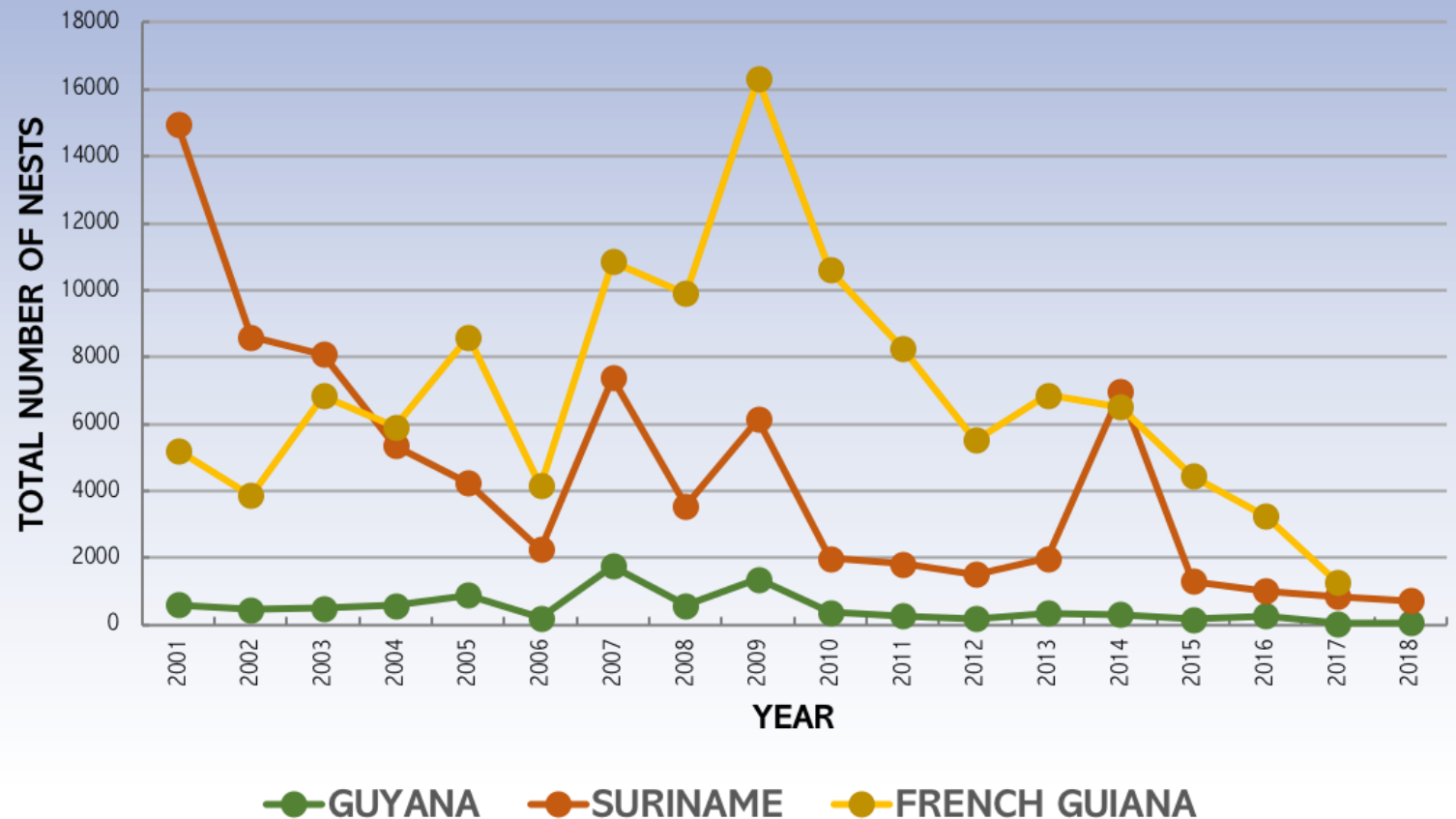


DC- Matapica beach Suriname (2012)  
Cumulative distance traveled: 6,490 km  
Average speed since release: 2.05 kph  
Time tracked: 132 days

# LEATHERBACK NESTING DATA AND TRENDS

<i>Dermochelys coriacea</i>	
Year	Suriname
2001	14937
2002	8608
2003	8081
2004	5356
2005	4242
2006	2246
2007	7380
2008	3551
2009	6146
2010	1985
2011	1824
2012	1515
2013	1978
2014	6974
2015	1297
2016	1003
2017	842
2018	719
<b>Total 2001-2017</b>	<b>78684</b>
<b>Average 2001-2017</b>	<b>4371</b>
<b>Percentage per country 2001-2017</b>	<b>36.88%</b>

**LEATHERBACK (*Dermochelys coriacea*) - NESTING TRENDS**



Nesting season: April - July



# DATA COLLECTION METHOD

## *Data collection method used*

- Different groups collected data in past
  - 1996-2011: STINASU
  - 1999-2005: BIOTOPIC (included Leatherback PIT Tagging)
  - 2012-present NCD (Nature Conservation Division)

The method consist of having a night and a early morning patrol and registering layed nests, false crawls and poached nests, as well as stranded and attacked sea turtles

## *Collection effort*

- The method of data collection during all these years has remained largely the same
  - The main effort challenge is having the teams in the field in time for the start of the season

# PIT TAGGING (2005)

## Biotopic pit tagging

Period: 1999-2005: 6 nesting seasons: from mid April till end June:

8462 leatherback females observed:

-> 6933 of which were BIOTOPIC PIT-tagged.

-> 1529 females carried PIT tags of a non-Surinamese origin.

Estimations of minimum **annual** nesting colony size: ranged from **1545 to 5500** individual females in Suriname alone.



# MAIN THREATS

## THREATS



### By-catch in drifting gillnets, tuna longlines and fish trawlers

In French Guiana approximately 25% of nesting leatherbacks scars have resulted from contact with fishing gear (SWOT, 2016)



### Illegal consumption of eggs

In Suriname, over 18 % of eggs are taken illegally, mainly Greens (WWF)



### Jaguar predation

HUMAN



### Coastal destruction and alteration



### Dog predation



### Sandmining



### Eroding beaches



### Offshore oil and gas development



### Climate change

NATURAL





# WHAT ARE THE CONCERNS WITH REGARDS TO LEATHERBACK BY-CATCH REDUCTION

- Fisheries that may interact with leatherbacks:
  - long line tuna fisheries
  - demersal fish trawlers
  - artisanal gillnet fisheries
- Artisanal fisheries all year; fish trawlers have 200 fishing days/a year
- Interactions during nesting season



Interactions with Industrial seabob Fisheries reduced to zero

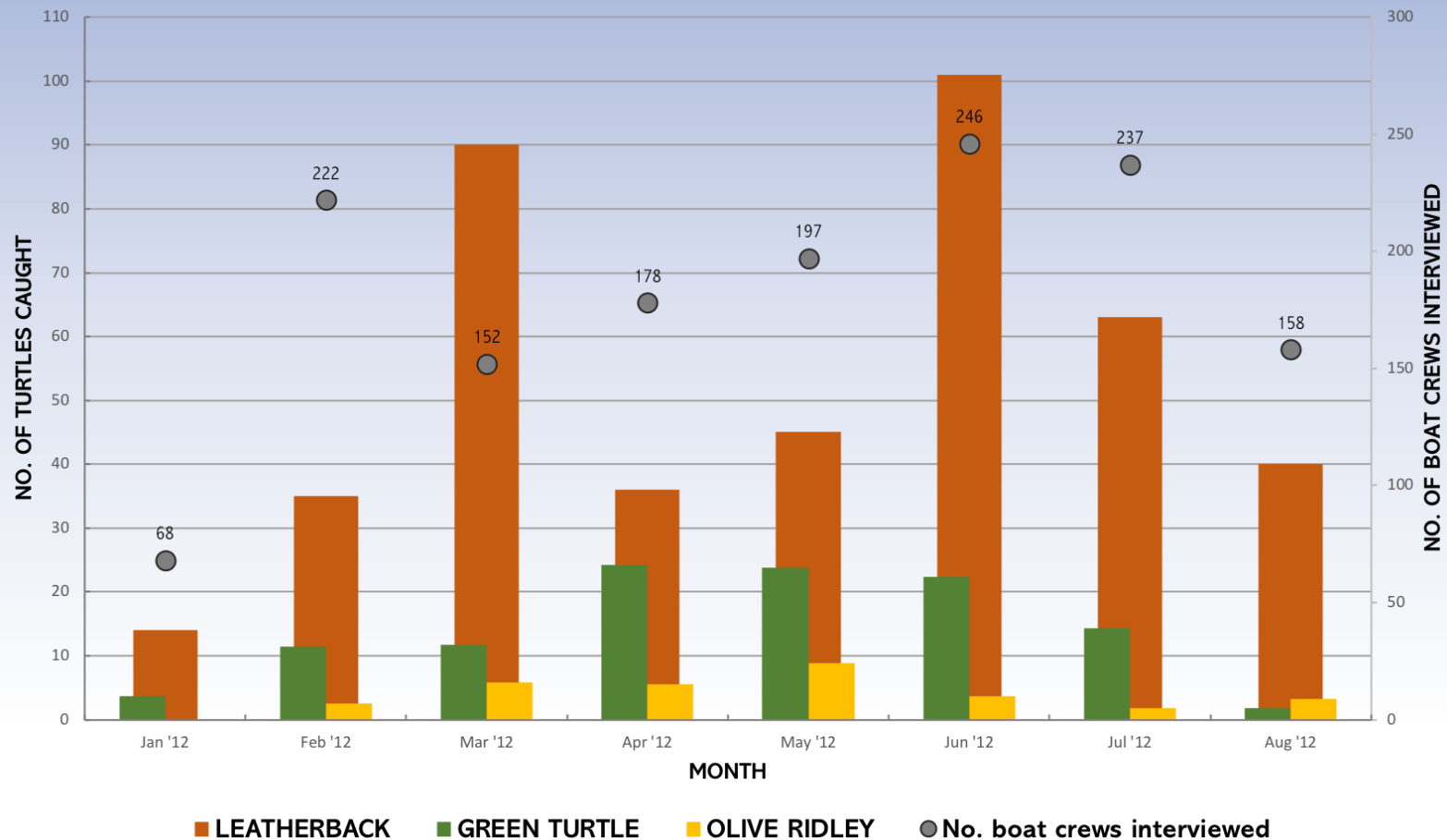


# BY CATCH DATA FROM INTERVIEWS ARTISANAL GILLNET FISHERMEN -2006-2010-2012

Data from 2012

Survival rate after caught in gillnet is 88.1 % (2006)

TOTAL NUMBER OF SURINAMESE GILL NET BOATS INTERVIEWED AND SEA TURTLES CAUGHT  
(Madarie, 2012)





## AREAS WHERE INTERACTIONS IS HIGHEST

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Artisinal Fisheries (gillnet) is a nearshore fisheries with interactions mainly during the nesting season.

No Fishing Zone in the Marowijne estuary of 15 x 15 km<sup>2</sup> is in place. It is regulated (fishing licenses and demarcated) but not enforced/ monitored regularly.

**Off coast: TALCIN project**

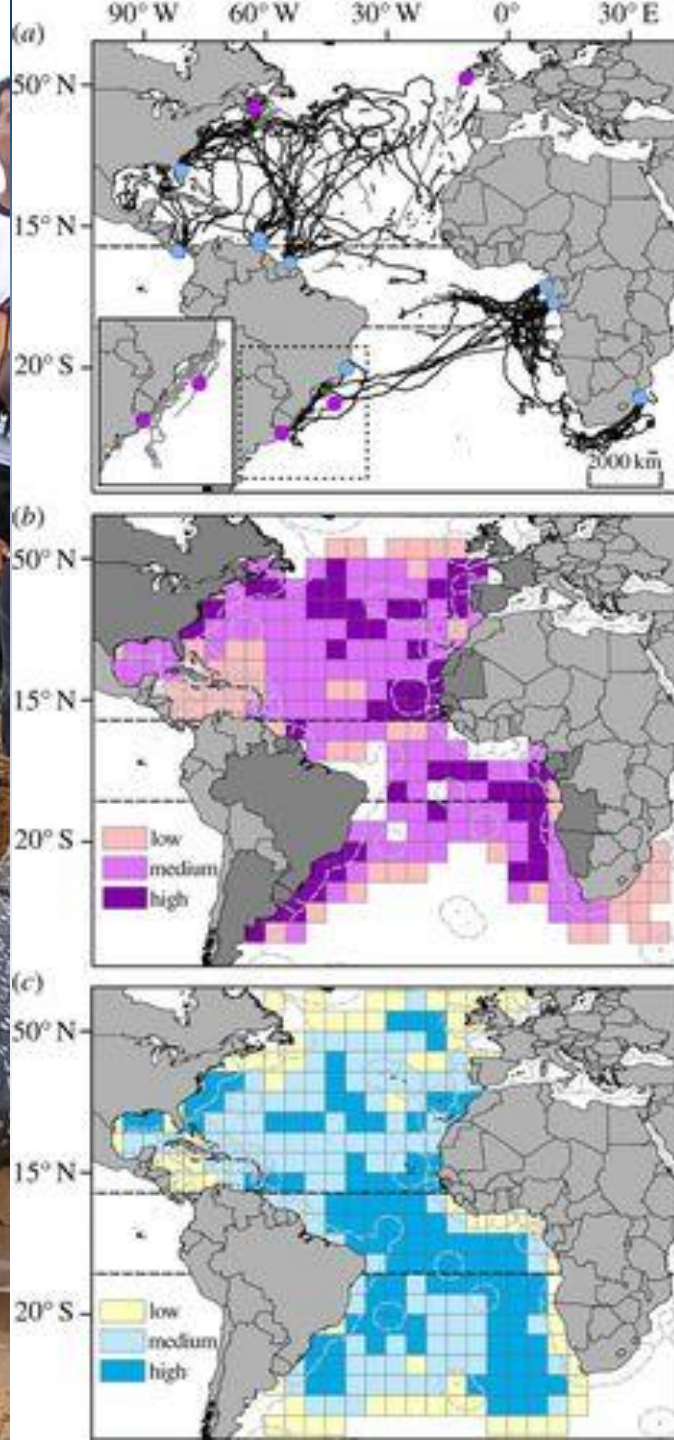


## AREAS WHERE INTERACTIONS IS HIGHEST

**TALCIN:** Trans-Atlantic Leatherback Conservation Initiative  
1995-2010: satellite tracking data of Leatherbacks overlap with fishing activity of long-line fisheries:

More than 4 billion hooks – equivalent to 730,000 hooks per day.

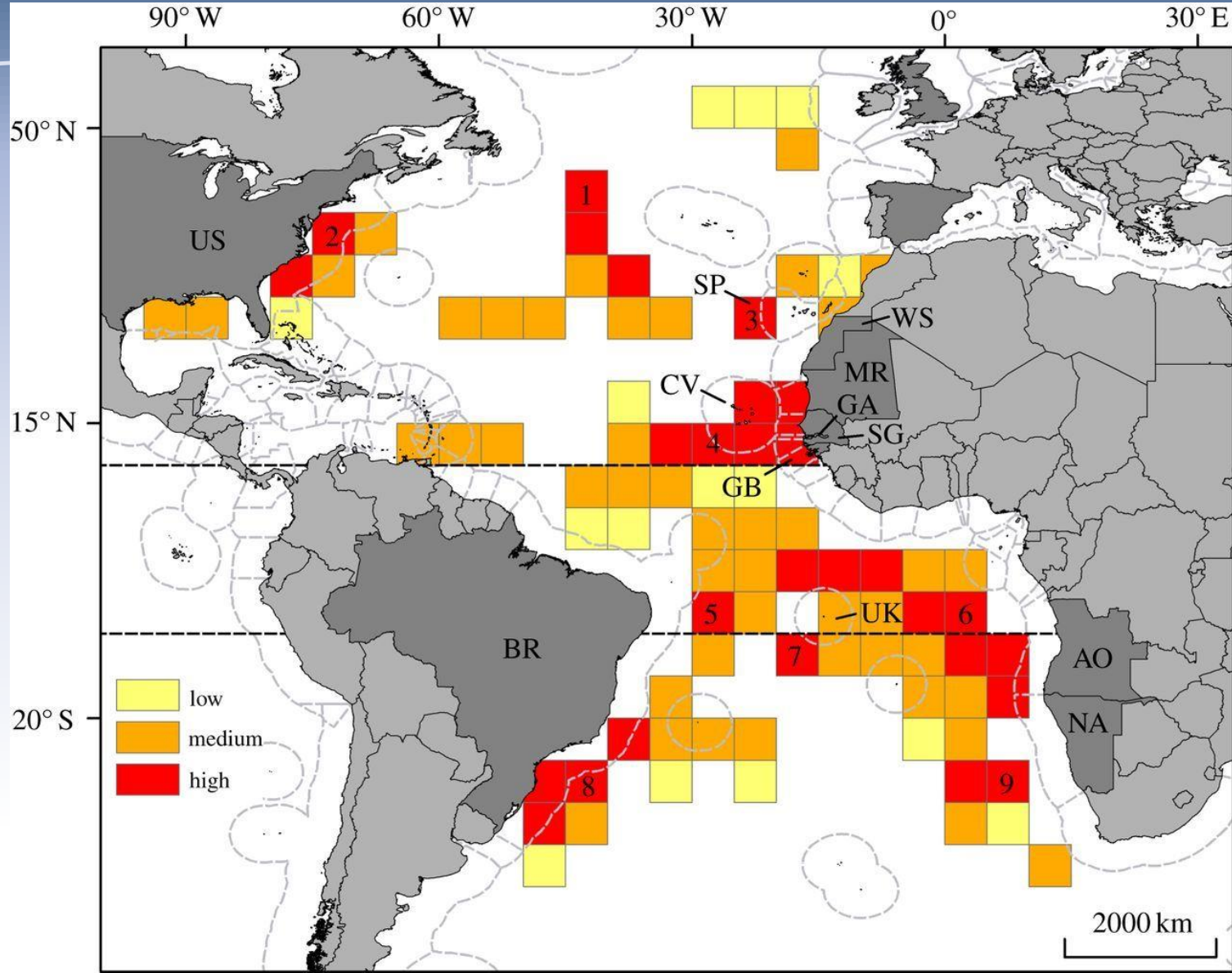
A Paper: [Pan-Atlantic analysis of the overlap of a highly migratory species, the leatherback turtle, with pelagic longline fisheries](#)



# TALCIN: MOVEMENTS OF SATELLITE-TRACKED LEATHERBACKS DURING THEIR MIGRATION IN THE ATLANTIC OCEAN, BETWEEN 1995 AND 2010

- (a) Black lines: movements of females tagged on the nesting beach ( $n = 93$ ).
- (b) Grey lines: movements of individuals tagged near presumed foraging grounds ( $n = 13$ ; four males, one juvenile and eight females).
- (c) Density of leatherback daily locations (locations were time-weighted and population-size-normalized).
- (d) Three density classes were defined: low, medium and high use.
- (e) High-use areas occurred both in international waters and within the EEZs

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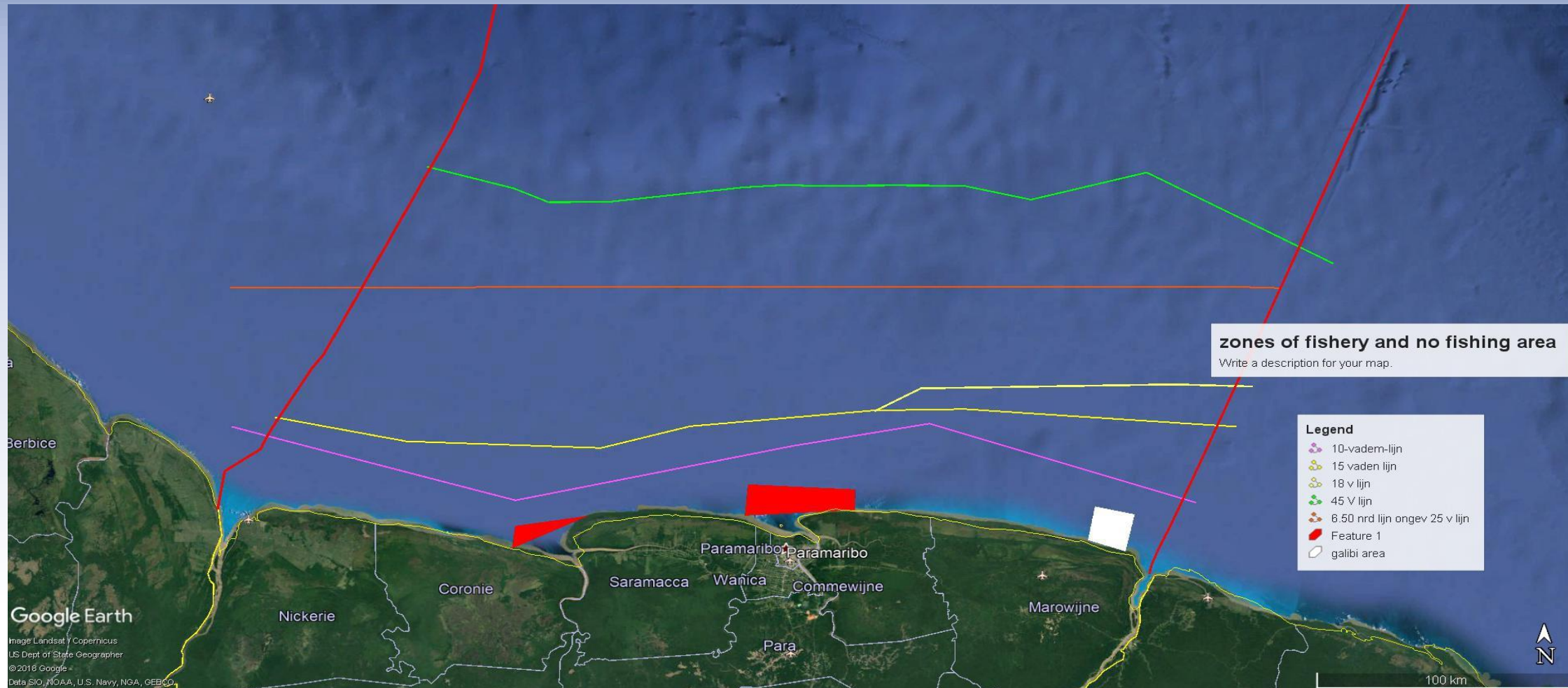




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# Fisheries Departement

# FISHERIES ZONES





# LICENSES

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Maximum licenses per category

Seabob 26

Prawns 35

Finfish trawls 35

Sk 445—15 Bank net ,430 Drift net





# IUU AND BYCATCH

IUU fishing and its impact on the turtle population have never been assessed. But if we look at the definition of IUU fishing we must not neglect the IUU fishing of boats from our own soil.

Foreign fishing vessels which are using driftnets and fishing in our waters are indeed posing a threat to the turtle population.

Using the rule of thumb of 20% to assess illegal fishery of frequently observed vessel types can be a starting point. Meaning that we must add 20% more driftnet vessels to the equation. Which will result to a total of 516. On top of this you will have those of own soil fishing without license. Another 86 will put the total about 600



# BYCATCH REDUCTION EFFORT: REGULATION

The Goal of the ministry is not only to reduce bycatch of protected species such as the turtle . But also to reduce and prevent the bycatch of all ETP species more focus on marine mammals.

Aware of the fact that the part of the trawl fishery which are not require by law to deploy a turtle excluder device or any mandatory regulation to follow to reduce bycatch of turtles and other ETP species are posing a great threat. The ministry is investigating technical tools which could be use to lower the bycatch and serious injury to these species

# BYCATCH REDUCTION EFFORT: REGULATION GAP

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Overcoming the weak Institutional capacity is the main challenge.

There is the need to improve manpower capacity

The knowledge capacity

The financial capacity

And the technical capacity





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WWF Guianas

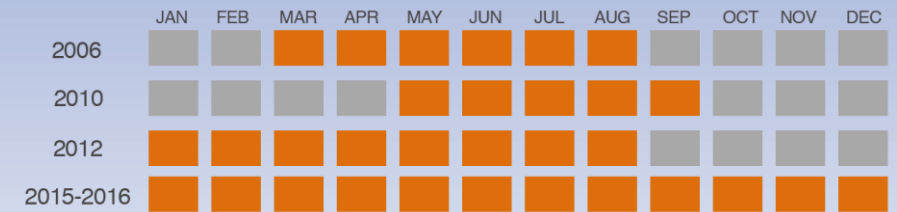
# LEATHERBACK BYCATCH DATA

## ARTISANAL GILLNET FISHERY

### METHODOLOGY

- Data collectors interview fishing crew at the harbour
- Use of a standardized data collection form
- Data analysis

### DATA COLLECTION PERIOD



### REMARKS

Data collectors experience reluctance from fishermen to share sea turtle catch data



**UNDERESTIMATION**

**WWF**

Aikanti *Dermochelys coriacea*  
 Krape *Chelonia mydas*  
 Warana *Lepidochelys olivacea*

Fishing Area A, Fishing Area B, Fishing Area C, Fishing Area D

Paramaribo, Double Nightbush, Elbert, Beboen Sant, Gato, Alaina

TAG NO  
 Departure Date  
 Return Date  
 Data collector

Fishing Date	GPS reading	1			2			3		
		Dead	Alive	M/F	Dead	Alive	M/F	Dead	Alive	M/F
Lat										
Long										
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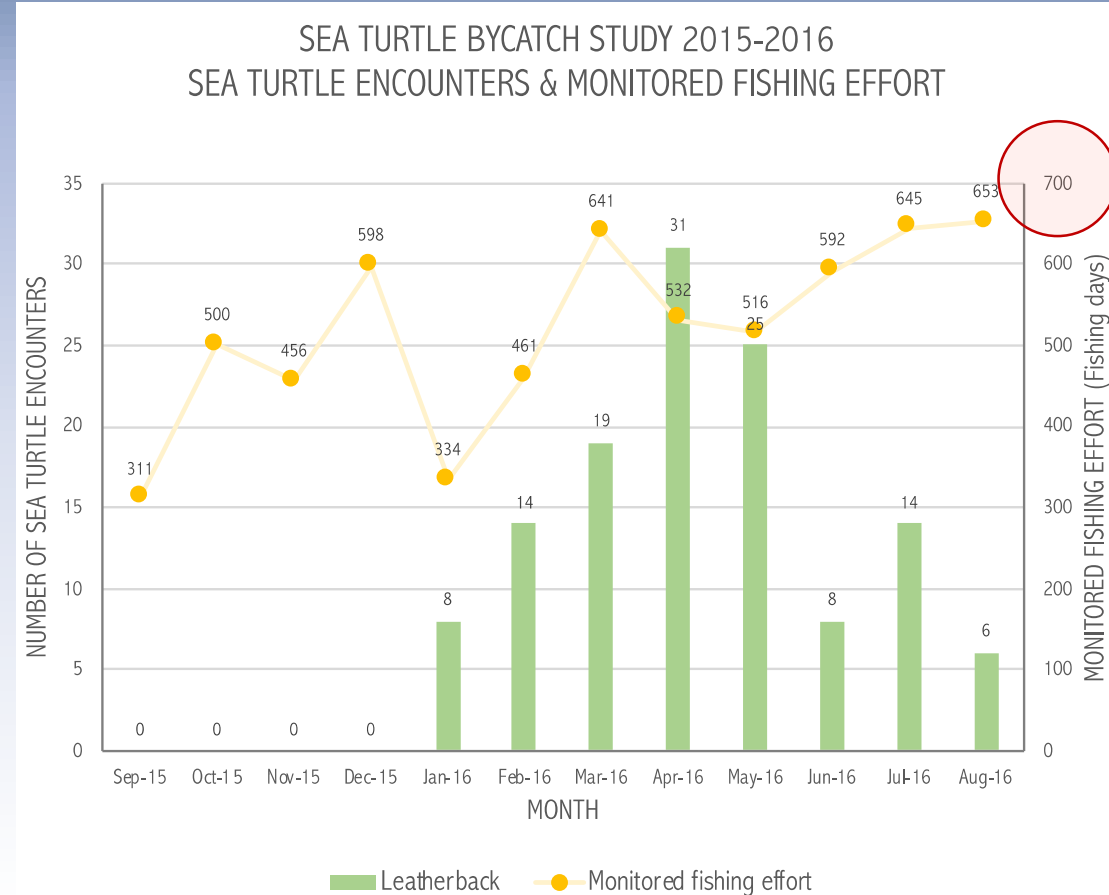
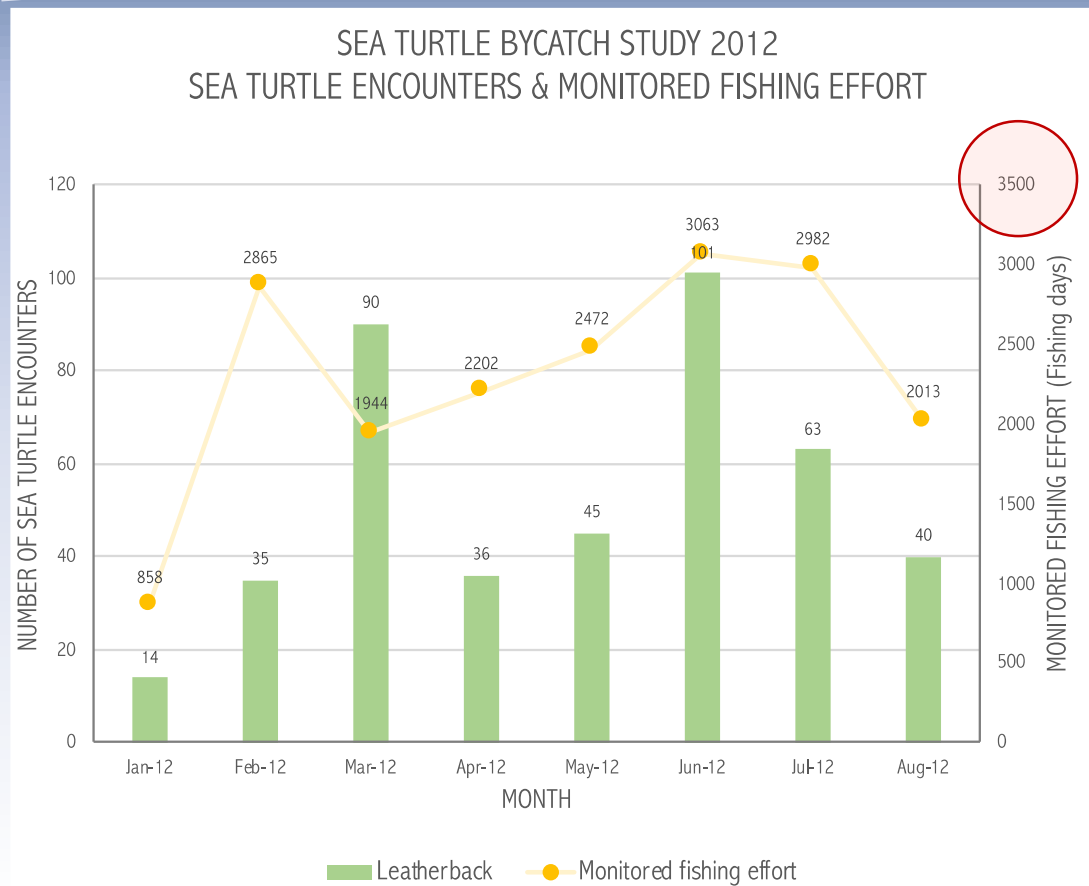
Top Line  
 diepte  
 1-5 vadem/fathom  
 5-10 vadem/ fathom  
 Mesh size .....inch  
 Bottom Line

Location of the turtles in the fishing net

Any fisherman who can come up with an idea to lower the catch of turtles will be rewarded.

# LEATHERBACK BYCATCH DATA

## ARTISANAL GILLNET FISHERY



  The monitored fishing effort is not comparable



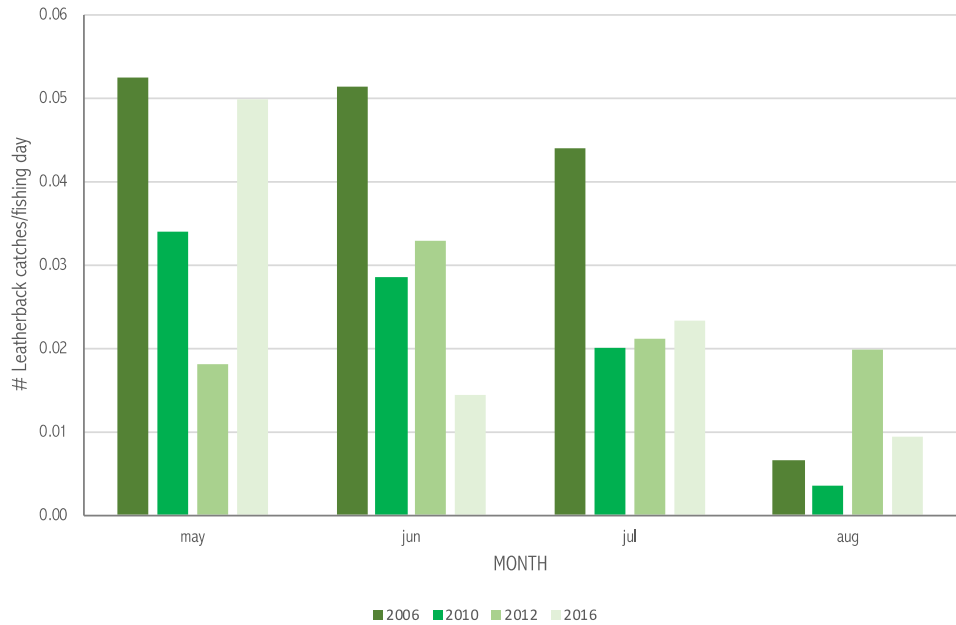
Calculation of “LEATHERBACK CATCHES PER UNIT OF FISHING EFFORT” (# sea turtles/fishing day)

# LEATHERBACK BYCATCH DATA

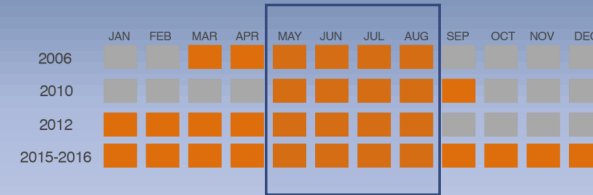
## ARTISANAL GILLNET FISHERY



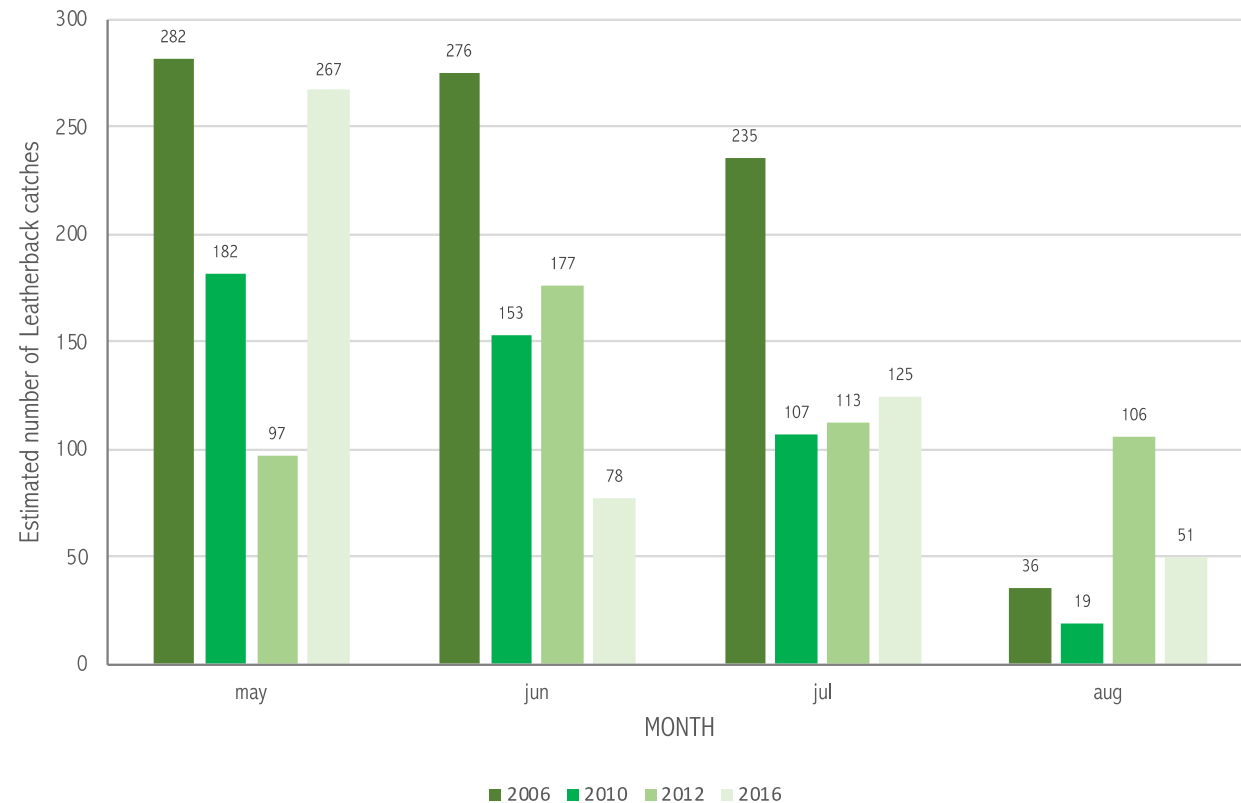
LEATHERBACK CATCHES PER UNIT OF FISHING EFFORT



Estimation based on an average of 5355 fishing days/month



TOTAL LEATHERBACK CATCHES - ESTIMATION





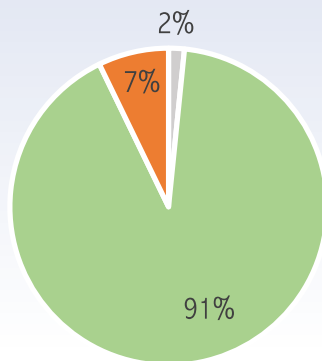
# LEATHERBACK BYCATCH DATA

## ARTISANAL GILLNET FISHERY

### ESTIMATION OF TOTAL LEATHERBACK CATCHES

2015-2016	SURVEY monitored fishing effort (fishing days)	SURVEY total catch of LEATHERBACKS	SURVEY # LEATHERBACKS /fishing day	TOTAL FLEET # fishing days/year	TOTAL FLEET # LEATHERBACKS/year
ARTISANAL GILLNET FISHERY	5778	125	0.02	64260	<b>1285</b>

CONDITION - LEATHERBACK



■ ND ■ alive ■ dead



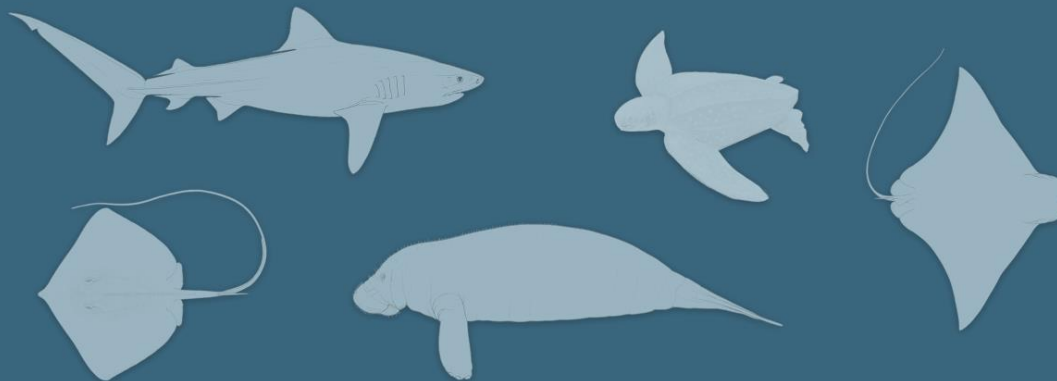
**> 90** LEATHERBACKS  
WERE KILLED BY THE ARTISANAL  
GILL NET FISHERY IN 2015-2016



# WWF EFFORT TO IMPROVE BY CATCH DATA

## ON BOARD GUIDE FOR THE IDENTIFICATION OF

## MARINE ENDANGERED, THREATENED & PROTECTED (ETP) AND KEY SPECIES OF THE GUIANAS



## SEA TURTLE HANDLING PRACTICES

### CONSIDER THE SIZE OF THE TURTLE

All turtles should be boated if possible

#### TOO LARGE TO BOAT



Try to work the turtle free. If necessary, cut all net from the turtle. Cut away from the turtle to prevent any injuries. Do not leave any net on the turtle.

#### SMALL ENOUGH TO BOAT



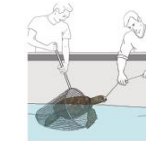
Lift the turtle on board. DO NOT use a gaff to boat the animal.

DRIFT NETS & TRAWLING

LONGLINES



Stop the vessel and bring the turtle as close to the boat as possible without putting too much strain on the line. Cut the line as close to the hook as practical.



Use a dip net to lift the turtle on board. DO NOT use a gaff and DO NOT pull on the line or grasp the eye sockets to bring the animal on board.

### DE-HOOKING A SEA TURTLE

Place a piece of wood in the turtle's mouth so it cannot bite, then cut the hook or line.



If the hook's barb is visible, use bolt cutters to cut the hook in half, and remove the two parts separately.



If the hook is not visible, remove as much line as possible without pulling too hard on the line, and cut it as close to the turtle as practical.

## Guidance on sea turtle handling and release



Koninkrijk der Nederlanden



THE SRIS PROGRAMME IS FINANCIALLY SUPPORTED BY THE DUTCH MINISTRY OF FOREIGN AFFAIRS (DGIS)



# BY-CATCH REDUCTION PRIORITIES

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Develop a TED for Fish Trawling

Test Bycatch reduction methods in gillnet fisheries

Promote the use of circle hooks

Reduce data gaps and increase monitoring of bycatch in fisheries

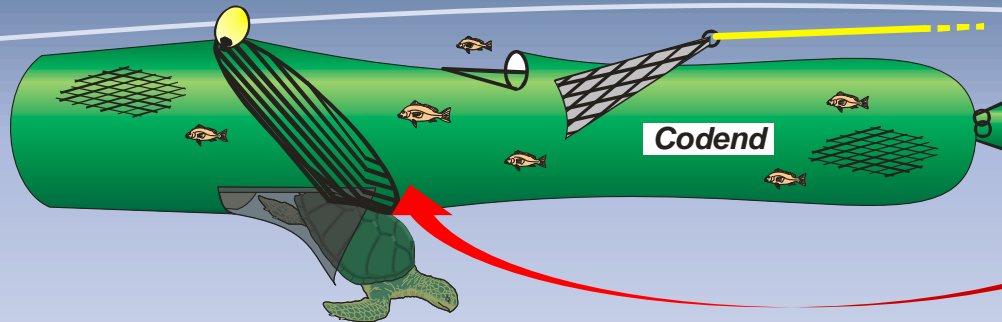
Education and awareness



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Tomas Willems  
REBYC-II LAC Project Coordinator

# TURTLE BYCATCH REDUCTION IN TRAWL FISHERIES



**TED = Turtle Excluder Device**

## Seabob shrimp trawling



- *Xiphopenaeus kroyeri*
- 18-27 m depth
- 26 licenses



*TED obligation since 1999*

## *Penaeus* shrimp trawling



- *Penaeus* spp.
- From 27 m depth
- 35 licenses



*TED obligation since 1999*

## Fish trawling



- Demersal finfish
- From 27m depth
- 35 licenses



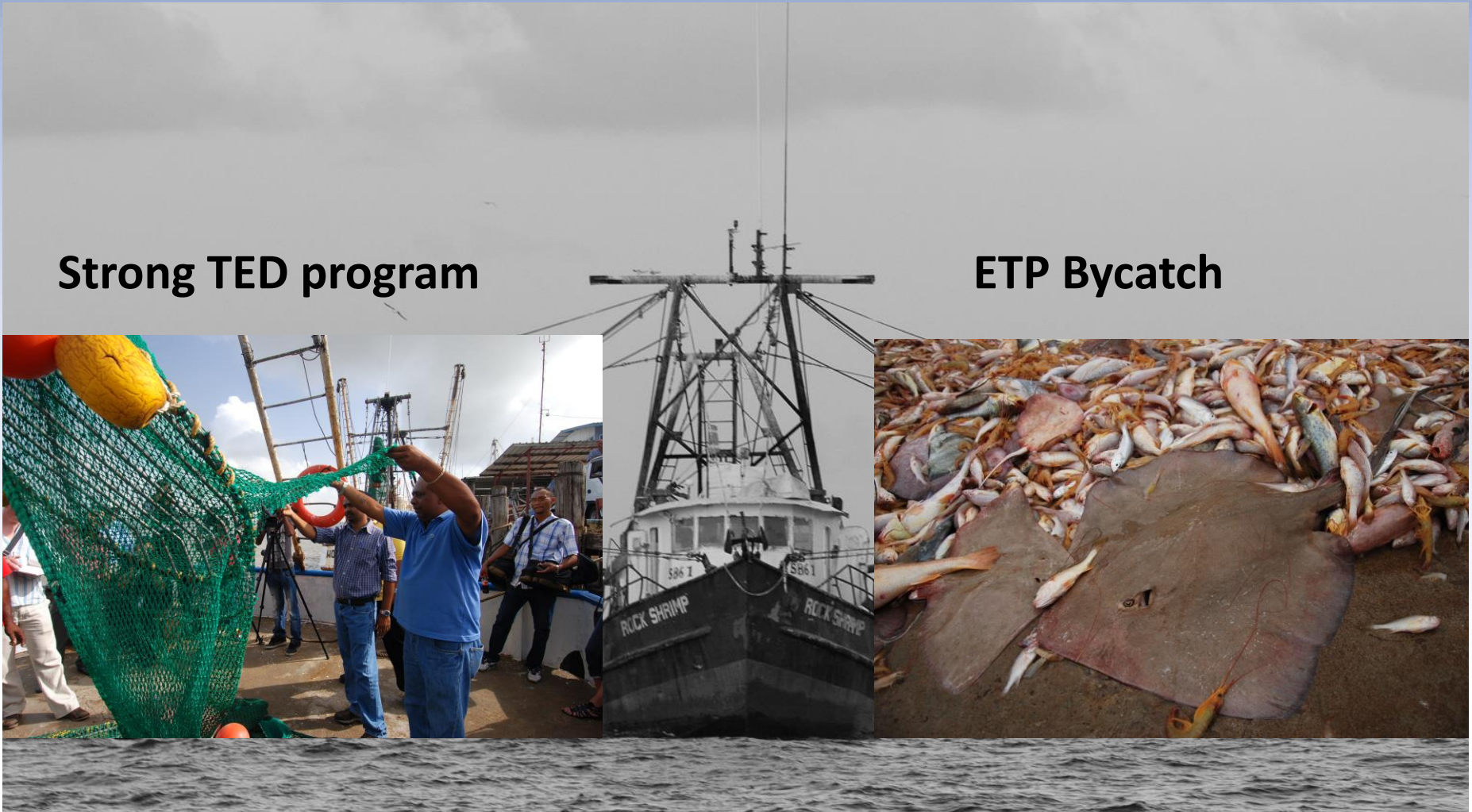
# TURTLE BYCATCH REDUCTION IN TRAWL FISHERIES

## SEABOB SHRIMP TRAWLING

**Strong TED program**



**ETP Bycatch**



# TURTLE BYCATCH REDUCTION IN TRAWL FISHERIES

## SEABOB SHRIMP TRAWLING

**TTED = Trash and Turtle Excluder Device**

**TED**

**3" TTED**

**2" TTED**



# TURTLE BYCATCH REDUCTION IN TRAWL FISHERIES

## FISH TRAWLING

**Turtle Bycatch**



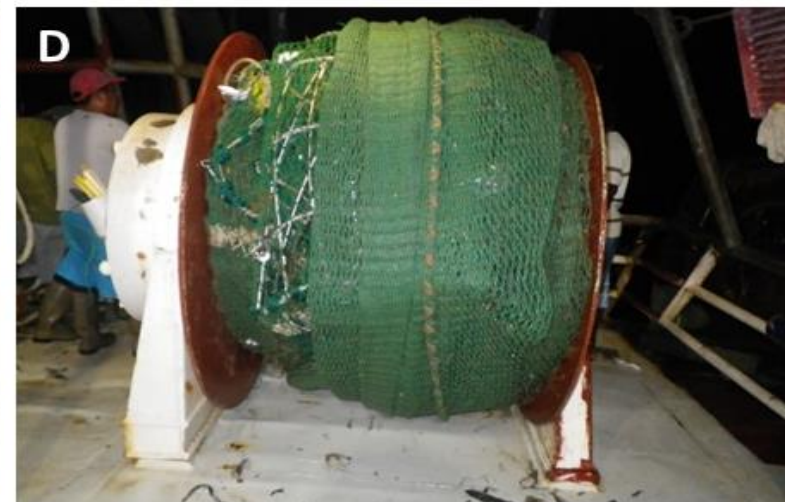
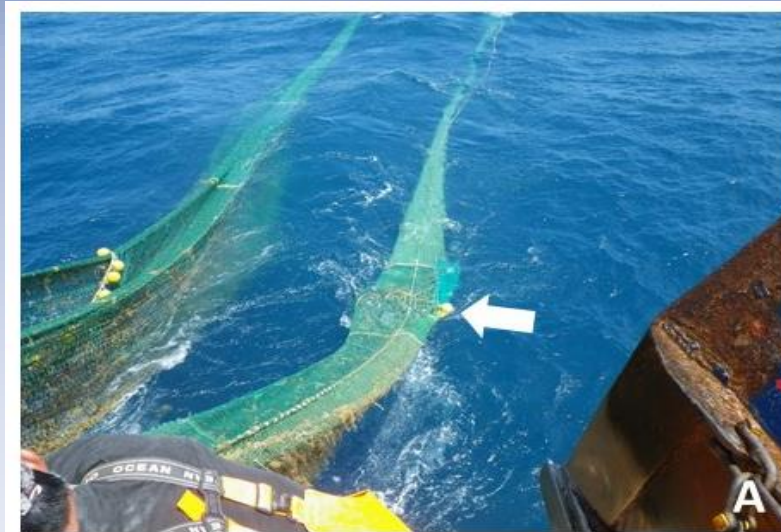
**Shrimp TEDs N/A**





# TURTLE BYCATCH REDUCTION IN TRAWL FISHERIES

## FISH TRAWLING



# TURTLE BYCATCH REDUCTION IN TRAWL FISHERIES

## THE WAY FORWARD...

- **Balancing bycatch reduction and target catch retention: no size fits all**
- **Involvement of fishing industry is crucial**
  - **Field knowledge**
  - **Ownership**
- **Weak Monitoring, Control and Surveillance**
  - **Benefits for the fishermen must be obvious**





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## Henk Bhagwandin CI-Suriname – Adekus project

# INTRODUCTION / BACKGROUND / VISUALIZE IMPORTANCE

Conservation International - Suriname: Pre-assessment of the weakfish small scale fishery in Suriname.

Target fish species: *Cynoscion acoupa* (Bang bang) and *Cynoscion virescens* (Kandratiki).

MSC+ Standard was used to for evaluation of the weakfish driftnet fishery.

Outcome / recommendation given out of assessment: Engage the fishery in an fishery improvement project.

Creation of: The Coastal - Fishery Improvement Project (C-FIP).



# INTRODUCTION / BACKGROUND / VISUALIZE IMPORTANCE



# PROTECTING ENDANGERED, THREATENED AND PROTECTED MARINE SPECIES



# INTRODUCTION / BACKGROUND / VISUALIZE IMPORTANCE



# INTRODUCTION / BACKGROUND / VISUALIZE IMPORTANCE





# INTRODUCTION / BACKGROUND / VISUALIZE IMPORTANCE



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# INTRODUCTION / BACKGROUND / VISUALIZE IMPORTANCE



## **Lane Snapper** **Surinaamse**

**Atlantische Oceaan**    **Wildvangst**  
**€ 11,00**            **Per Kilo=**  
                                 **1000 gram**

*Visbandel*  
*Fa. Siem Schilde*



# INTRODUCTION / BACKGROUND / VISUALIZE IMPORTANCE



# INTRODUCTION / BACKGROUND / VISUALIZE IMPORTANCE





# A PILOT PROJECT OF CONSERVATION INTERNATIONAL -SURINAME (CI-SURINAME) ON THE INTRODUCTION OF BYCATCH REDUCTION DEVICES, GEAR ADJUSTMENTS AND CHANGE IN FISHING PRACTICES WITHIN THE ARTISANAL (SK) FISHERIES IN SURINAME

**1. In collaboration with fishers investigate the direct effect of net adjustments and fishing method to bycatch reduction of ETP-species and catch rates of target species *C. acoupa* and *C. virescens*.**

To be constructed

**In collaboration with Visser's Collectief / Net constructor / fishermen**

# A PILOT PROJECT ON THE INTRODUCTION OF BYCATCH REDUCTION DEVICES, GEAR ADJUSTMENTS AND CHANGE IN FISHING PRACTICES WITHIN THE ARTISANAL (SK) FISHERIES IN SURINAME

## 1. Reduction of marine turtle bycatch in small scale driftnet fisheries in Suriname.

**Net lights** Aimed at reducing turtle bycatch in small scale fisheries. “Sea turtles see well into both the ultraviolet and red ends of the spectrum, with their peak vision occurring around green light”. Placing: every 10m. Total required per net 200-400.

**Allerting.....**

Device available,  
June 2019

**1000 hour battery  
life in water**

**Turn on/off  
automatically  
entering /exiting the  
sea**

**Batteries  
replaceable 2\*AA**



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Device available,  
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Net lights

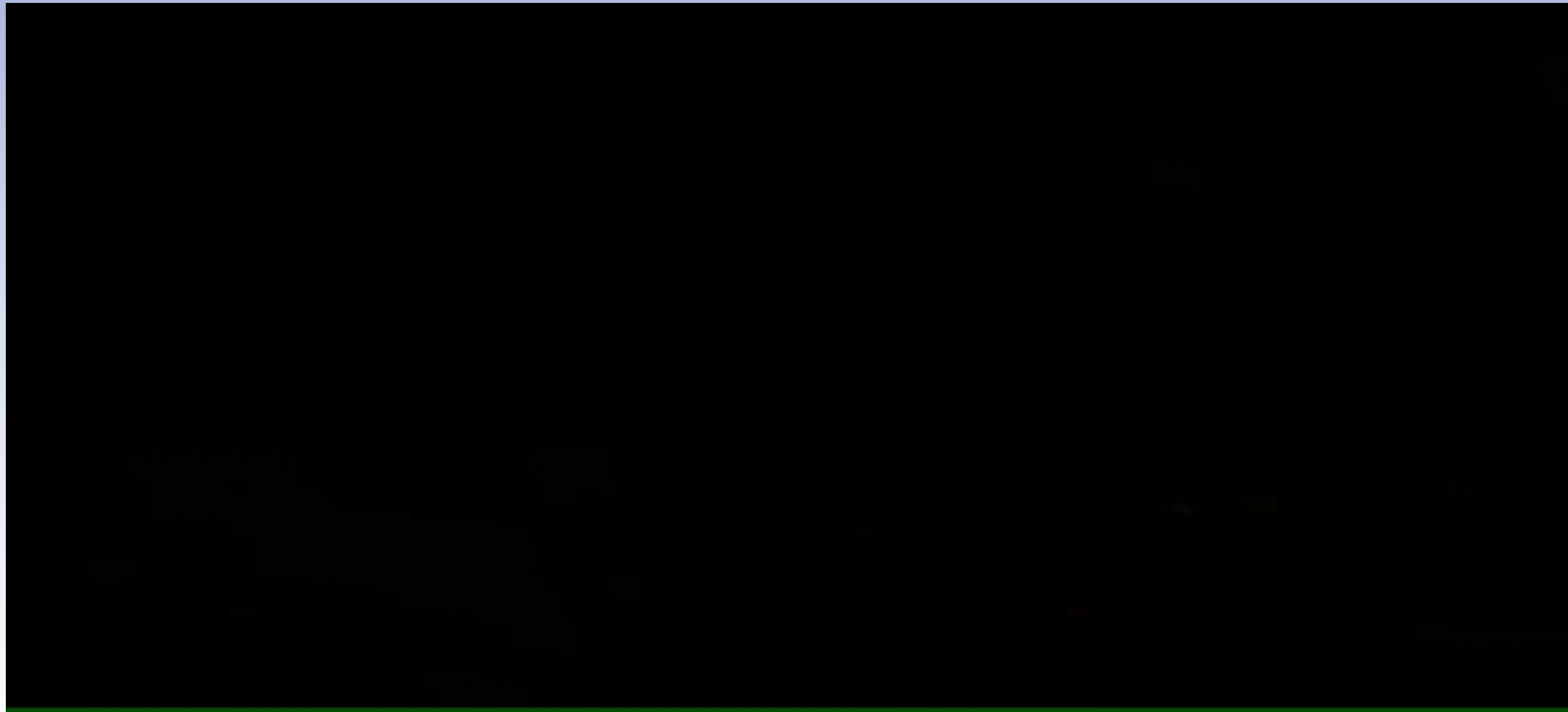
Allerting...





# A PILOT PROJECT ON THE INTRODUCTION OF BYCATCH REDUCTION DEVICES, GEAR ADJUSTMENTS AND CHANGE IN FISHING PRACTICES WITHIN THE ARTISANAL (SK) FISHERIES IN SURINAME

**Allerting.....**



## CLOSING REMARKS

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Thank You for listening

Questions?

