

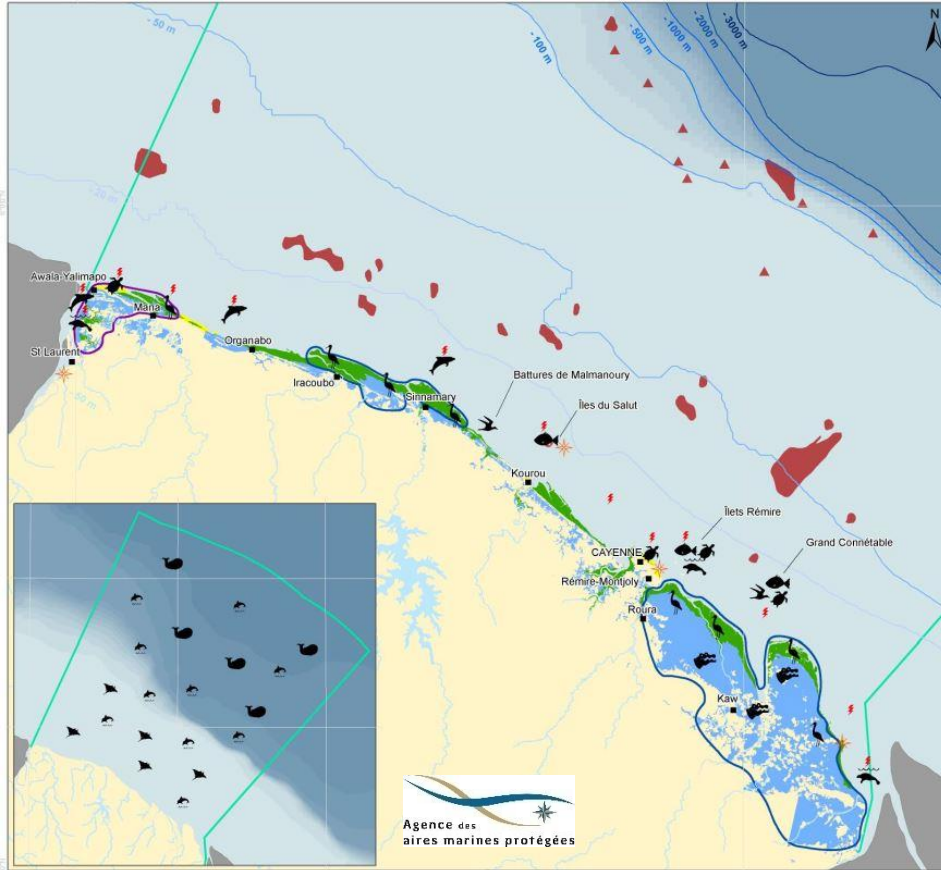


# FISHERIES INTERACTION AND BYCATCH REDUCTION : PALICA PROJECT AND CPUE TRAINING



WIDECAST – March 2019

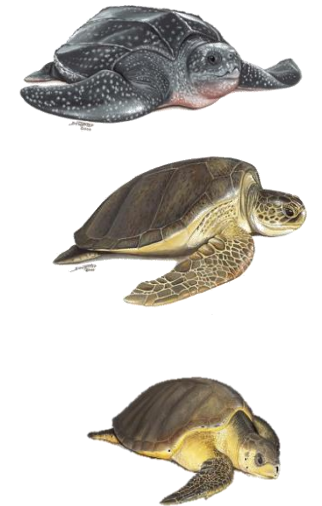
# 1) Marine environment



- 350 km long
- 80% mangrove forest
- Rocky habitats and beaches

## - **3 species of sea turtles nest in FG beaches**

- Leatherback
- Green turtle
- Olive ridley turtle

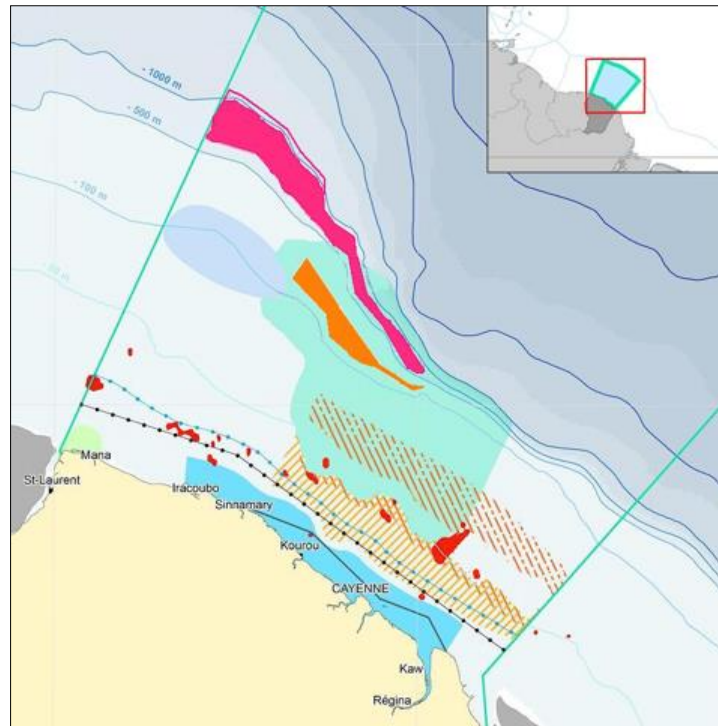


## - **24 species of marine mammals including**

- Guyana dolphin



# Rich Fishing Zones



AMMP

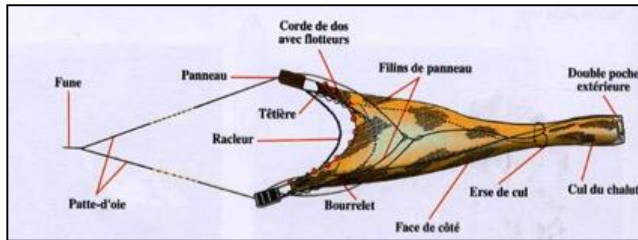
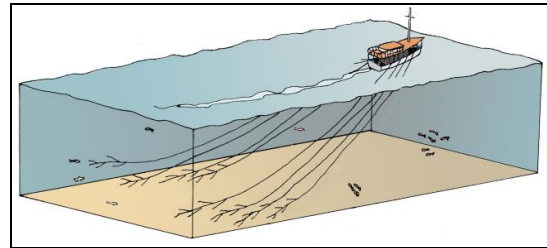
- EZZ: 130 Km<sup>2</sup>
- >200 species of fish and shrimp



# French Guyana Fisheries

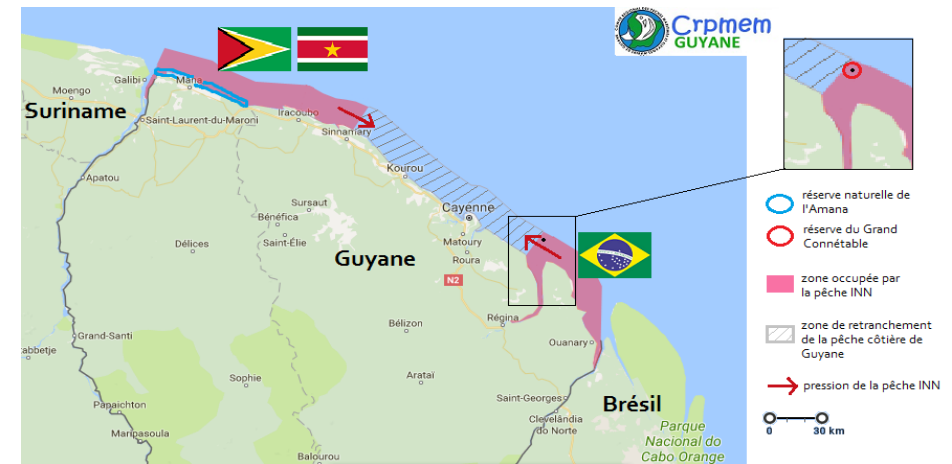
## Legal fisheries

- 3<sup>rd</sup> economic sector
- 3 fisheries :
  - Red snapper handline (45)
  - shrimp trawl (22 – Active)
  - Gillnet small scale : 200 boats (125 with a license)



## Illegal fisheries

- **IUU fishing**: 2/3 of the FG resources caught by foreign fleets



**BIGGEST THREAT TO RESSOURCES AND ETP SPECIES IN GUIANAS SHIELD**

# Partnership for more than 10 years



2006-2018 : Feasibility of TEDs in FG

2007 : Bycatch and fishers study in the Maronie estuary

2008-2009 : on board monitoring and internship to evaluate the efforts of shrimping fleet to reduce environmental impact

2010 : TTED Project

2011-2014 : TALCIN

2014-2015 : on board monitoring

2016 : Report on the impact of shrimp imports to the EU

2017 : Internships : feasibility of conducting participatory mapping of coastal fishing activity

-Study of sawfish.

2018 : Palica (fishermen active towards the reduction of environmental impact

# GILLNET FISHERIES INTERACTION

## PALICA PROJECT

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« Fishers Actively Working Towards the  
Reduction of Bycatch »

# Different F.G. Boats studied



## Tapouilles:

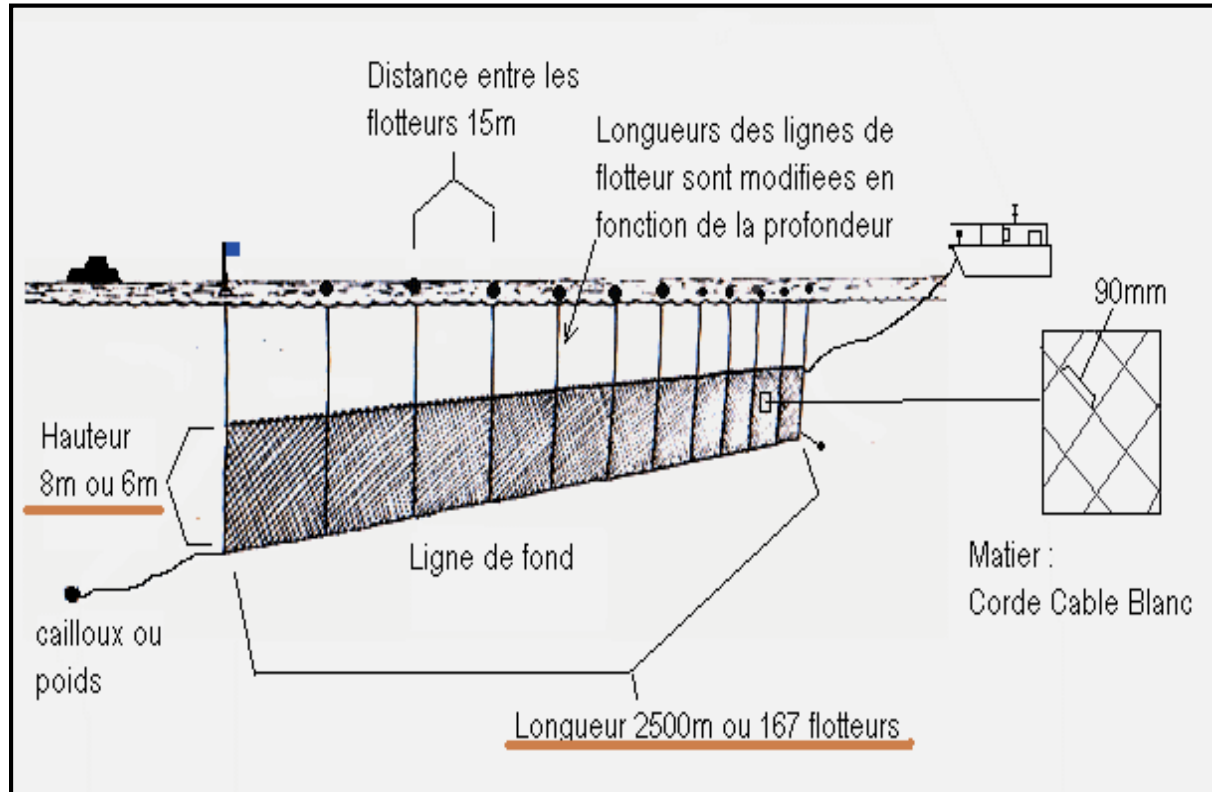
- Trips last 8 to 14 days
- Ice holes of 6 to 7 T (large prod.)



## Improved Creole Canoes:

- Trips last from 3 a 8 days
- Ice holes of 1-2 T

# The nets of the Tapouilles and ICC in F. Guyane



## Tapouille floats



## ICC floats



Différence:

- Floats
- ICC nets are sometimes shorter than Tapouille nets



# Small scale fishery impact

Onboard monitoring organized in 2008-2009 and 2014-2015

## Results for leatherbacks :

- Most bycatch occurs between March and August
- 82% of leatherbacks were found at the top of the net / 20 % in the floats lines
- 40 to 60% of leatherbacks were drowned



## Results for green turtles :

- Present all the year
- 25% were drowned in 2014

## Results for olive ridley turtles :

- Present from June to October
- More bycatch during « arribadas »

# PALICA project (2017-2018)



## Continued Partnership WWF – French Guyana Fisheries Committee



### Fishermen issues :

- Bycatch = Loss of time and money
- Possibilities to promote fishery

### Aims :

- Improve knowledge about bycatch in each fishing community
- Collaborative work with fishermen to find technical and financial feasible solutions to reduce bycatch

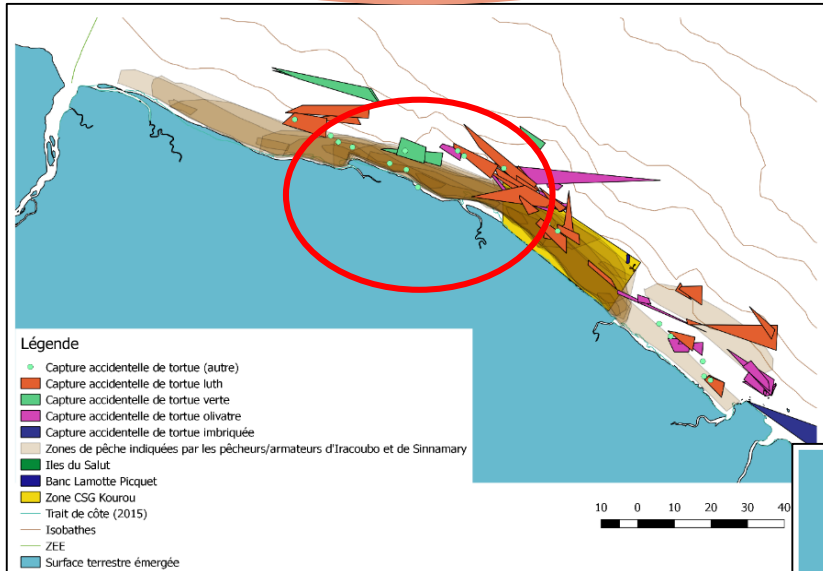


**50 fishers interviews MULTIPLE TIMES** were conducted in the 5 fishing communities

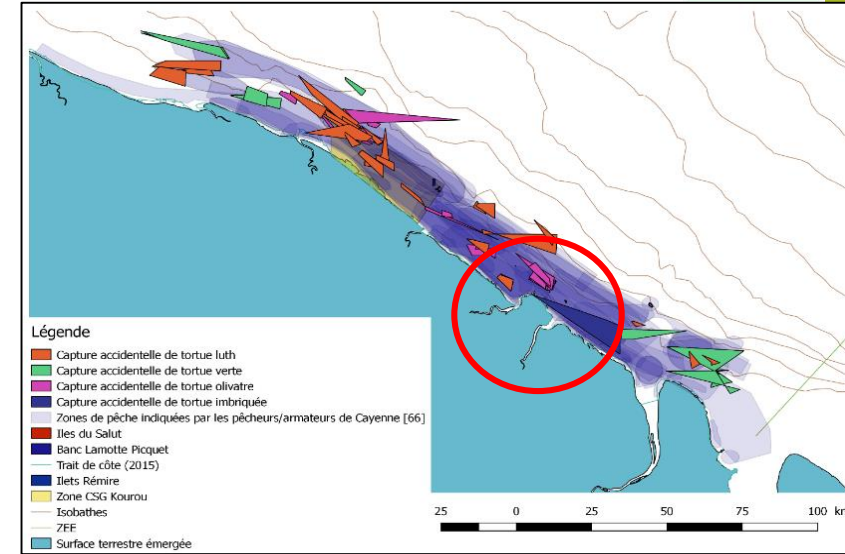
# PALICA outcomes – overlap of turtles and fishing zones



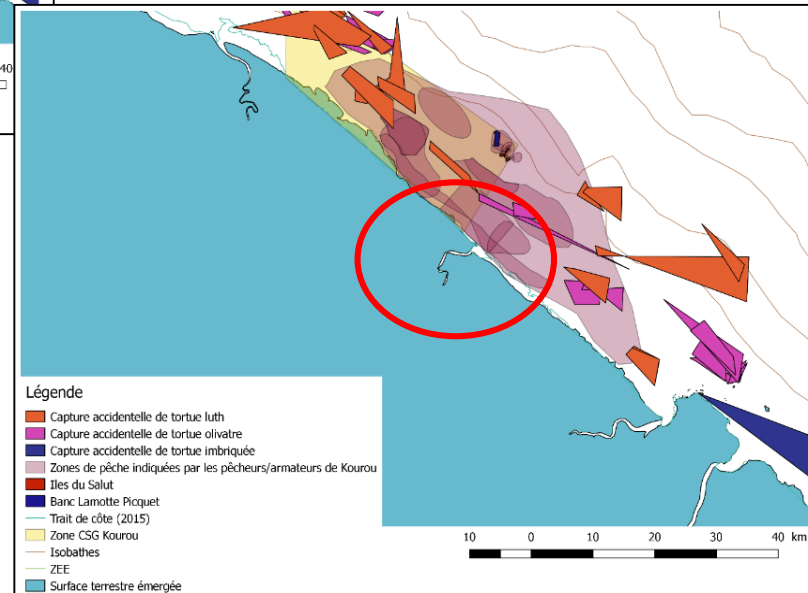
## Iracoubo, Sinnamary



## Kourou



## Cayenne



## 3 ways to reduce sea turtles bycatch :

1) Change type of fishing gear / Target Species



**Develop experimental fisheries / Stock assessments**

2) Limiting fishing activities depending on season and place



**Need in depth knowledge on bycatch species ecology and buy in from fishers**

3) Adapt fishing gear and practices, adopt Bycatch Reduction Devices

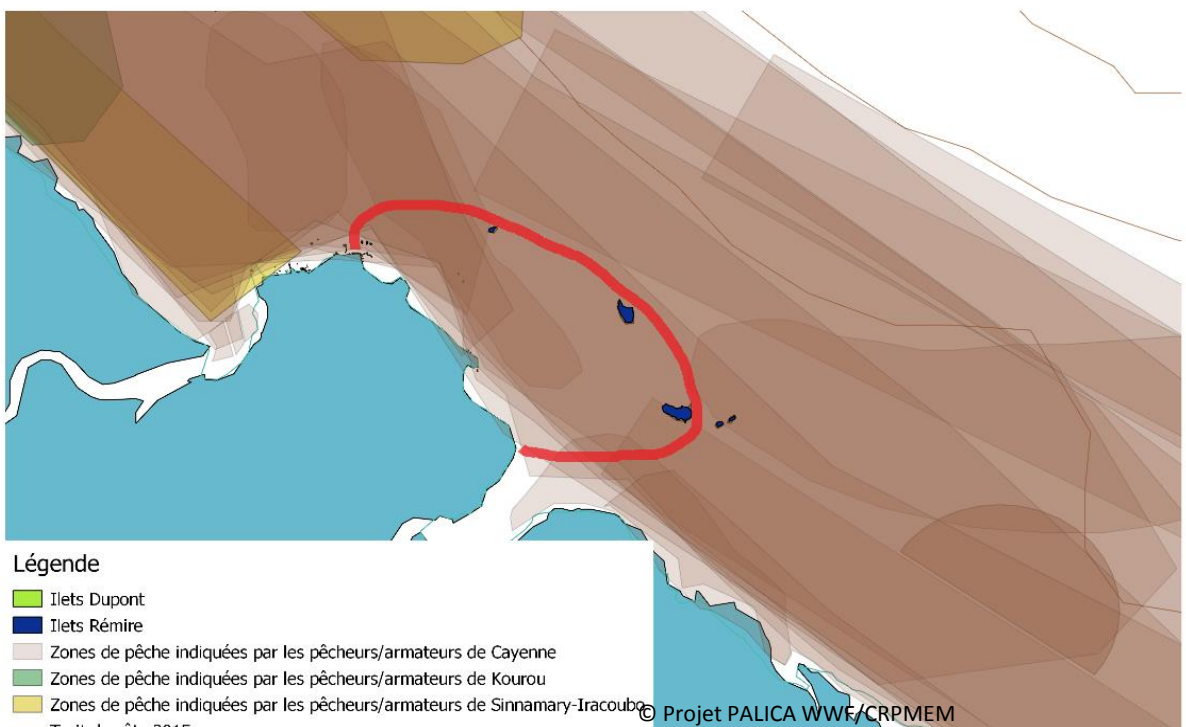


**Test modified fishing gears / Develop best Practices**

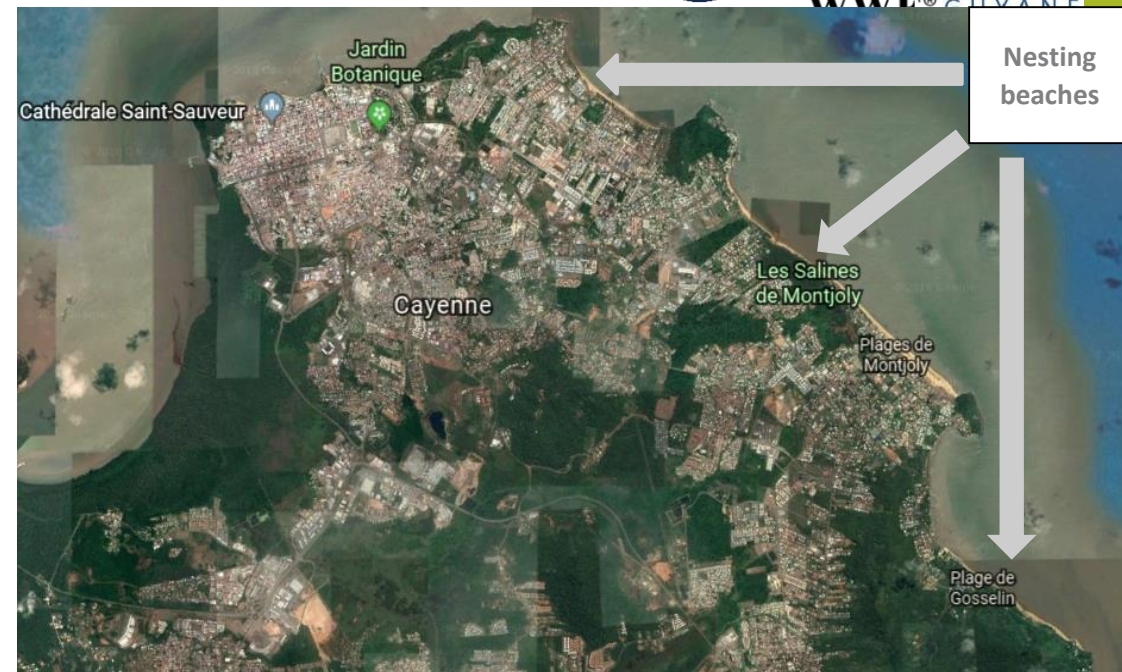
# PALICA's - ARRIBADA project

Specie concerned : ridley turtle

Aim : Alert and help fishermen to limit their activities for the « arribada moments »



1 0 1 2 3 4 km



## Process developed with the fishermen :

- define the fishing area where there is a risk of ridley bycatch (CNRS + Fishers + WWF)
- Send an alert to warn of turtle présence
- Promote the fishermen voluntary efforts

## Description :

- Train volunteer fishermen
- Give good practices guide
- Teach

## Reanimation techniques.



## Good releasing techniques.



### MARINE TURTLES HANDLING AND RELEASE GUIDE FOR LARGE GILL NET BOATS

Sea turtles are protected: even when dead, they must be put back at sea. Penalty: 9 000 €  
Les tortues marines sont protégées : même mortes, elles doivent être remises à l'eau. Amende : 9 000 €  
As tartarugas marinhas são protegidas: mesmo mortas deverão ser devolvidas ao mar. Multa : 9 000 €

Retrieve net, avoiding yanking motions. Consider the size of the turtle, determine if it can be boated. All turtles should be boated if possible.

Récupérer le filet, en évitant de l'arracher. Déterminer si la tortue peut être embarquée. Si possible, embarquer toutes les tortues.

Tirar a rede sem rasgá-la ou tirá-la. Ver se o tamanho da tartaruga permite de subirla a bordo ou não. Embarcar todas as tartarugas si possível.

#### DO NOT / NE PAS / NÃO

Do not cut towards the turtle. Ne pas diriger la lame vers la tortue. Não dirigir a lâmina para a tartaruga.

Do not pump the chest, it will injure the animal. Ne pas appuyer sur sa poitrine, cela blessera l'animal. Não amassar o peito, pode ferir o animal.

Do not cut the turtle. Ne pas couper la tortue. Não cortar a tartaruga.

#### If boated / Si embarquée / Se abordo :

Do not use gaffs to retrieve the turtle. Try not to injure or drop the animal. Ne pas utiliser de gaffes pour récupérer la tortue. Ne pas blesser ou faire tomber l'animal. Não usar objetos que podem ferir para pegar a tartaruga. Não ferir, não jogar o animal.

If not easily disentangled from the net, cut the net off. Cut away from the turtle to prevent any injuries. Do not leave any lines or nets attached to the turtle.

Si la tortue n'est pas libérable facilement, couper le filet. Diriger la lame à l'opposé de la tortue pour ne pas la blesser. Ne laisser aucune corde ou filet attaché à la tortue.

Se a tartaruga está presa na rede e que não consegue sair, cortar a rede. Cuidado ao não cortar (ferir) ela : cortar para cima e dirigir a lâmina ao lado oposto da tartaruga. Não deixar nenhuma corda e rede amarrada na tartaruga.

#### If non boated / Si non-embarquée / Se não abordo :

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.

Libérer la tortue du filet, et si nécessaire, couper le filet et tout enlever. Diriger la lame à l'opposé de la tortue pour ne pas la blesser. Ne laisser aucune corde ou filet attaché à la tortue.

Tenta de liberar a tartaruga. Si necessario, cortar a rede para liberar ela. Cuidado ao não cortar (ferir) a tartaruga : cortar para cima e dirigir a lâmina ao lado oposto da tartaruga. Não deixar nenhuma corda amarrada na tartaruga.

**1 Weak or dead turtle / Tortue faible ou morte / Tartaruga morta o com fraqueza**

If turtle seems dead or weak, drain the water from the lungs by inclining the turtle with its head down and gently shaking it. If the turtle is big, have two persons hold it.

Si la tortue est morte ou faible, lui vider l'eau des poumons en l'inclinant tête en bas et en la secouant doucement. Si la tortue est grosse, la porter à deux.

Se a tartaruga esta morta o com fraqueza, tirar a agua dos pulmões inclinando a cabeça para baixo e agita ela com cuidado. Se a tartaruga é grande, sustentar ela com duas pessoas.

Drain the water and place turtle on an incline (15-30 degrees) with back legs elevated and neck clear from objects. Place in the shade with moist cover on. If not reanimated after 24 h or if you're returning to port, release it.

Egoutter puis incliner la tortue (à 15-30 degrés), pattes arrière élevées et son cou débarrassé de tout objet. La placer à l'ombre, et la couvrir d'une couverture humide. Si après 24h elle n'est pas réanimée ou si vous rentrez au port, relâchez-la.

Terla enxagoadado e inclinar (15-30 graus) a tartaruga com as patas para cima e para o alto, e seu pescoço sem nenhum objeto. Botar la na sombra, e cobra ela com uma cobertura humida. Si depois de 24 h a tartaruga esta morta, o si o barco retorna ao porto, liberar a tartaruga.

**2 Live turtle / Tortue vive / Tartaruga viva**

Set free keeping it away from the propeller (if possible put engine in neutral). Relâcher la tortue loin du moteur (si possible au point mort). Deixala longe das hélices o do motor (si possível deixar o motor desligado).

Thank you! / Merçi! / Obrigada!

© 2010 - Réalisation : Kwata (M. Lescoff) / CRPHEMG (T. Nalovic) / Illustrations : J.P. Penez

# PALICA'S SELECTIVITY Phase 1 (2 years)



## Aims :

- **Implement onboard monitoring**
  - Selectivity test with onboard observers (tapouille)
  - With set camera activated by fishing actions (cca)



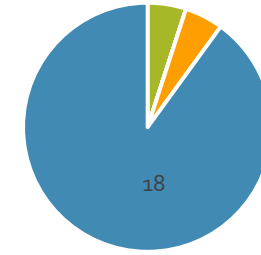
- **Test the solutions selected by fishers in PALICA**

# Reduce vertical profile

**Species concerned** : seaturtles and marine mammals

**Aims** : Free up the water's surface

**Issue** : Turtles and Guiana dolphin are mainly found in the top of the net



■ non ■ moyen ■ a tester ■ oui

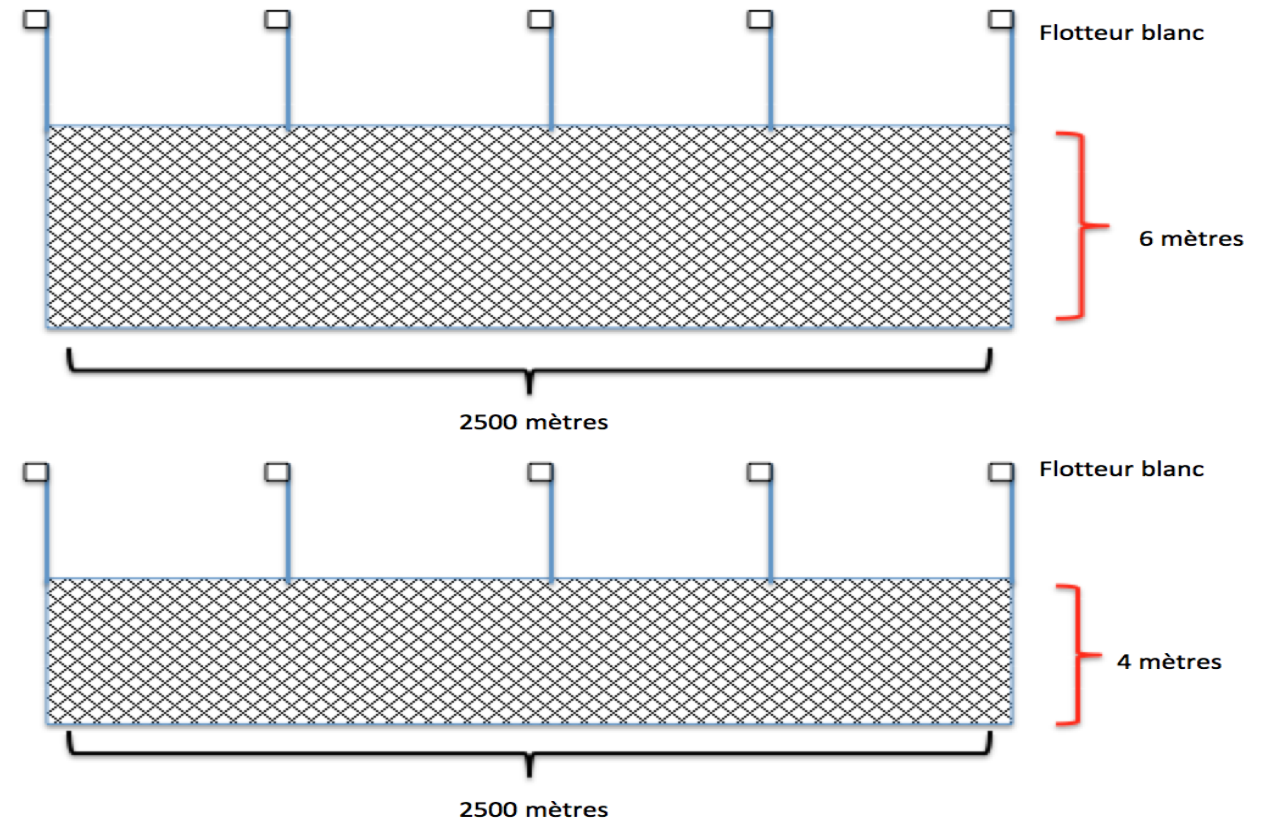
## Benchmark :

- Experience did in Trinidad and Tobago in 2007 : leatherback bycatch decreased by 68 % (34% CPUE)
- FAO recommendations (2013) « how to reduce seaturtles bycatch »

## Description:

- Reduce the height of the net (bottom drift net)
- See the loss of production
- See gain in time (less bycatch / damage to gear)

Test 2 - Hauteur 6m vs hauteur 4m





# Change color floats

**Species concerned :** leatherback

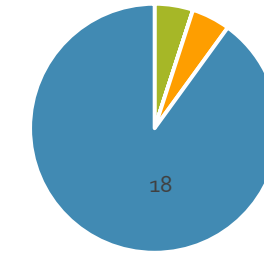
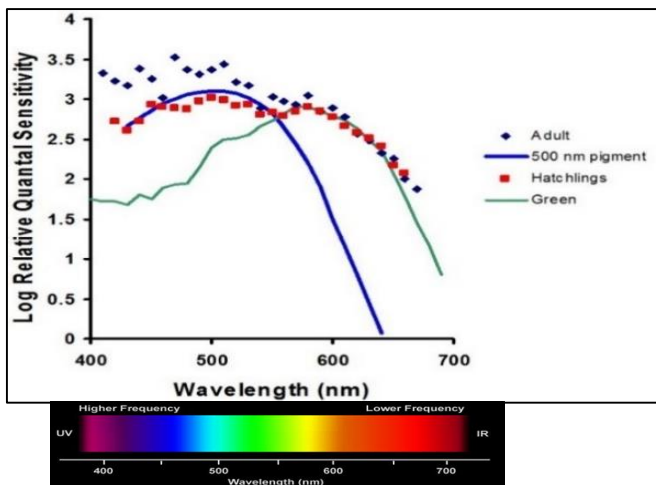
**Aims :** Avoid leatherbacks attracted by white color or clear floats

**Issue :** Seaturtles see white and yellow color but don't see red color

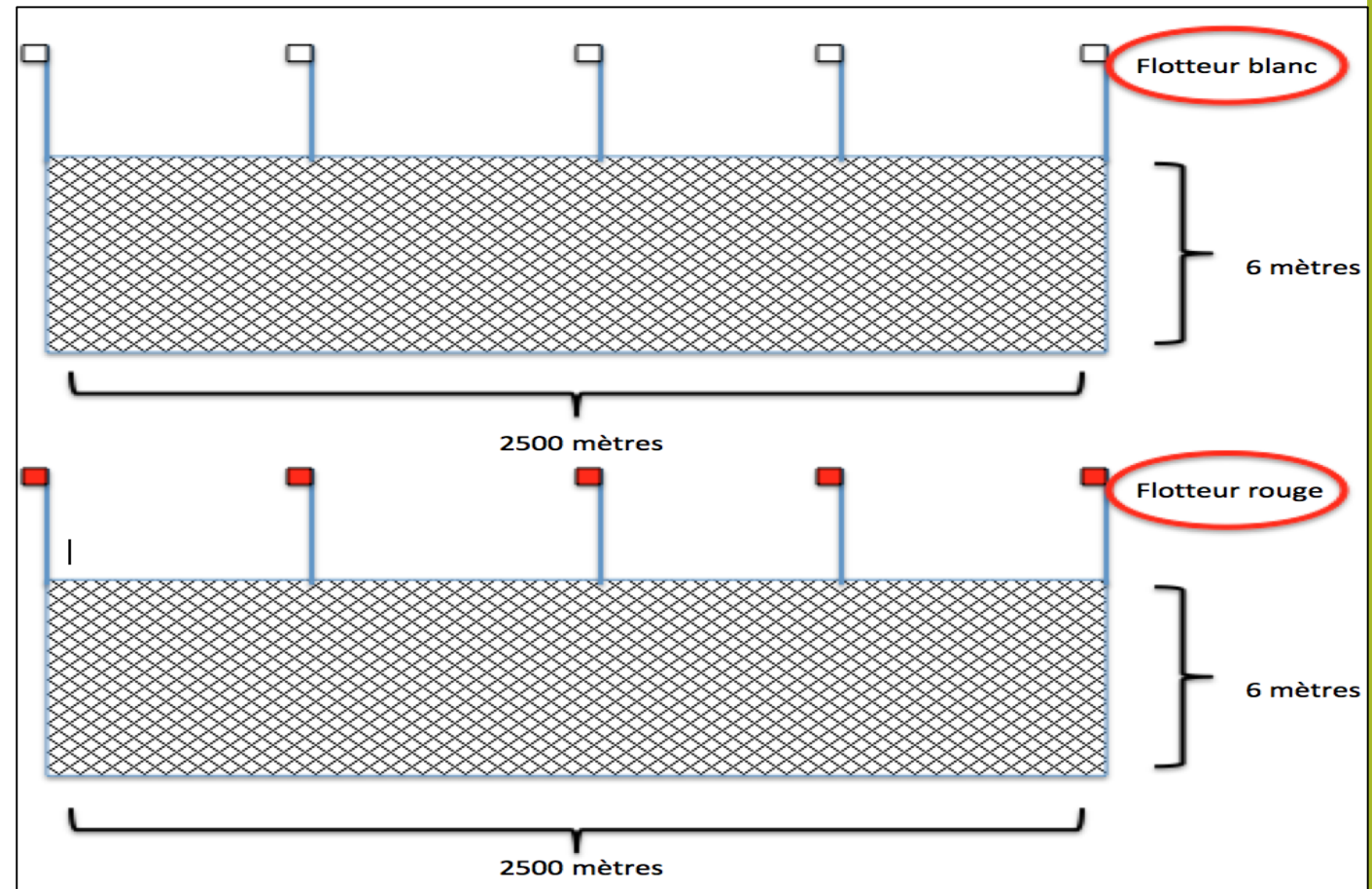
(Horch et al, 2008)

## Limitations :

- No preexisting literature on effect
- Only would reduce leatherback bycatch



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# Remove float lines and floats

**Species concerned :** leatherback

**Aims :** Avoid leatherbacks tangled in float lines by freeing the water surface

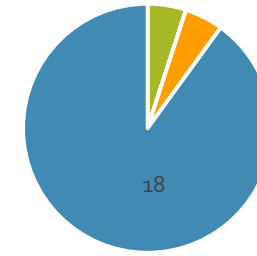
« Seaturtles are always getting in the ropes of fishing gear »

## Description:

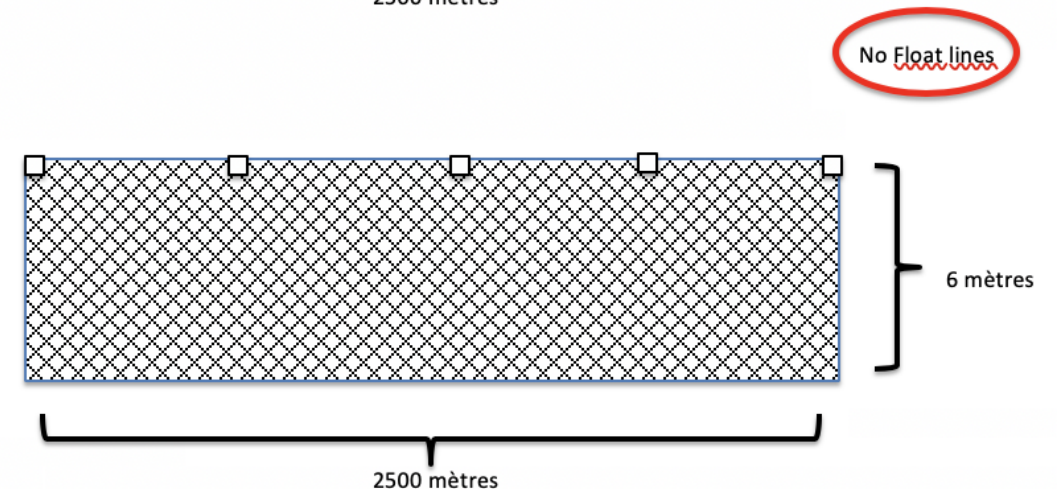
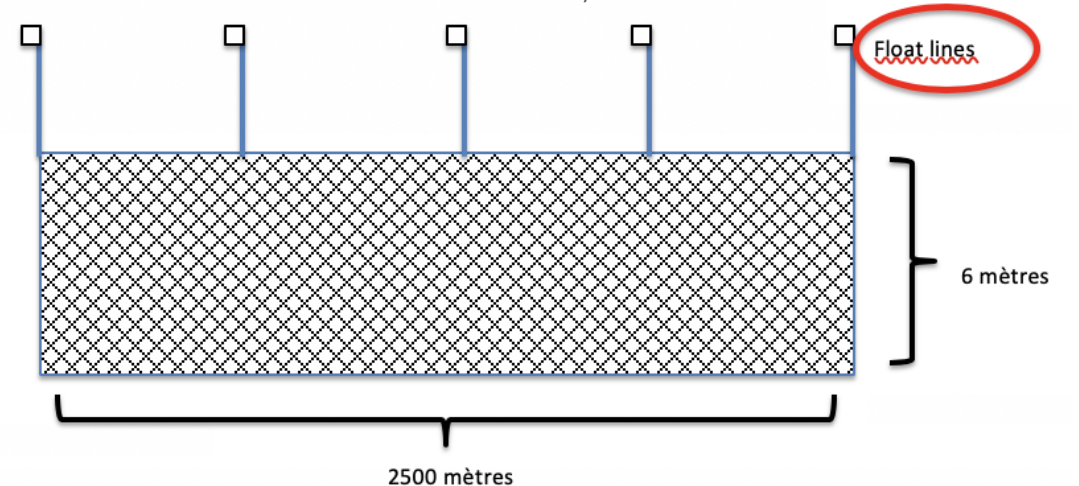
- Put floats directly on the floats lines (submerged)

## Limitations :

- Fishers use floats to see if the net is fishing right
  - « Make sure net not caught up in rocks or 'laying down' »



■ non ■ moyen ■ a tester ■ oui



# Illuminating the net

**Species concerned** : sea turtles and marine mammals

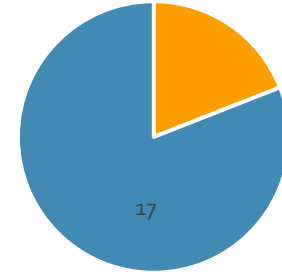
**Aim** : to illuminate the net

## Description:

- Put on the floats lines all night
- Bycatch decrease of 59% in Mexico gulf with lighsticks (Wang et al., 2009) et 64% in Peru with LED (Ortiz et al., 2016)
- Same yield

## Limitations :

- Cost /Gear is not yet fully developed (Solar charged)
- Maintenance
- Turbidity of Guiana shield waters



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# SHRIMP TRAWLER INTERACTION

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TTED IMPLEMENTATION



Crpmem  
GUYANE



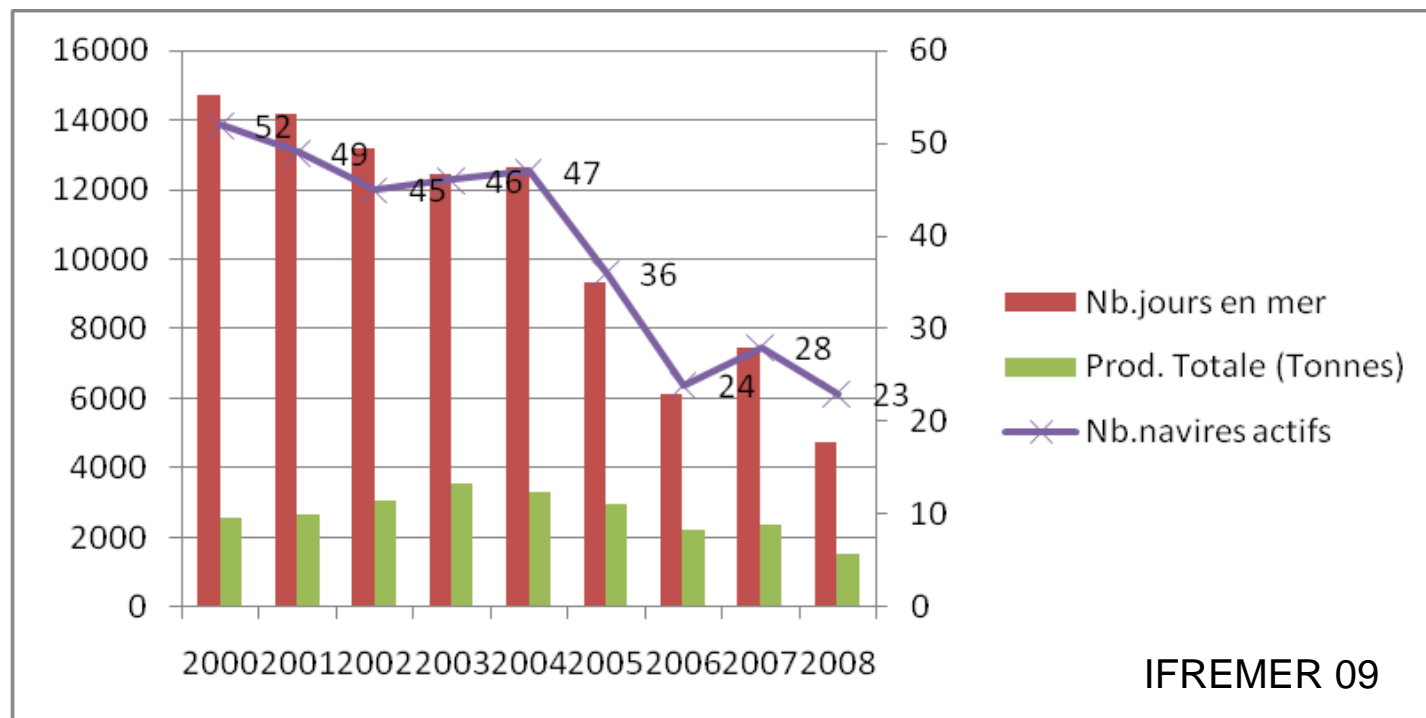
Ifremer



- Estimation of interaction between shrimp trawlers and marine turtles of the coast of French Guiana – report in prep
- TTED and TED

# History of the shrimp fisheries in FG

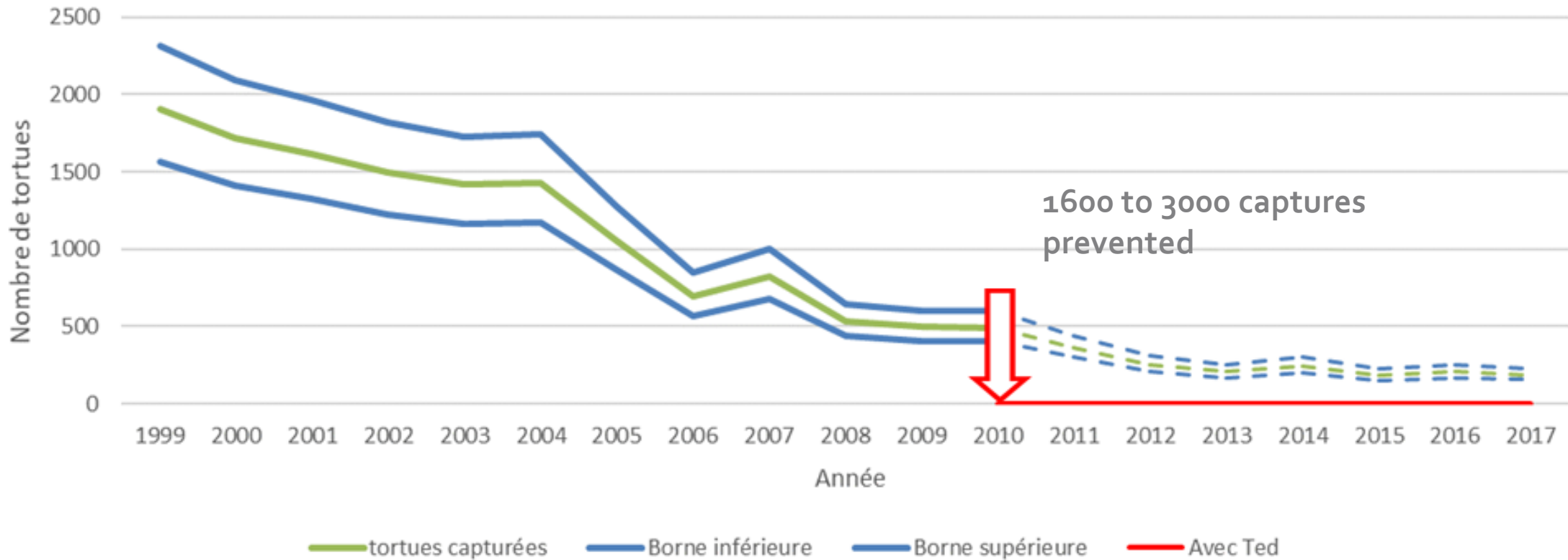
- **60-80** : 120 U.S.A. boats fishing 10 months a year.
- **79-2011** : Steady reduction of number of boats/licenses.



- 2018 : 22 license but only 8 licenses used

# Turtle bycatch before and after TED

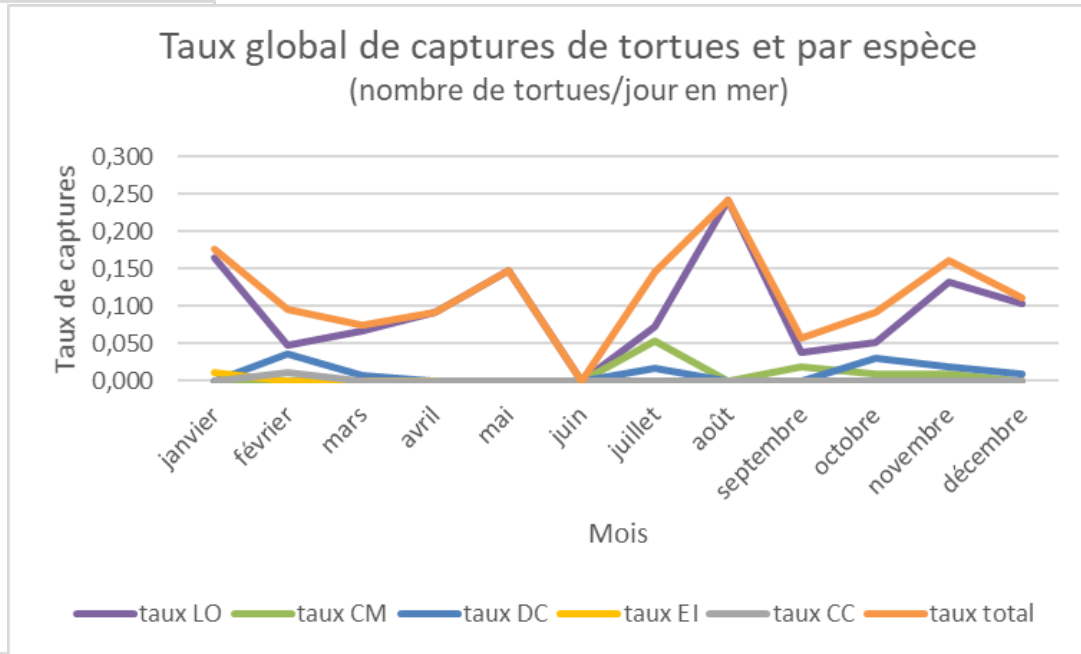
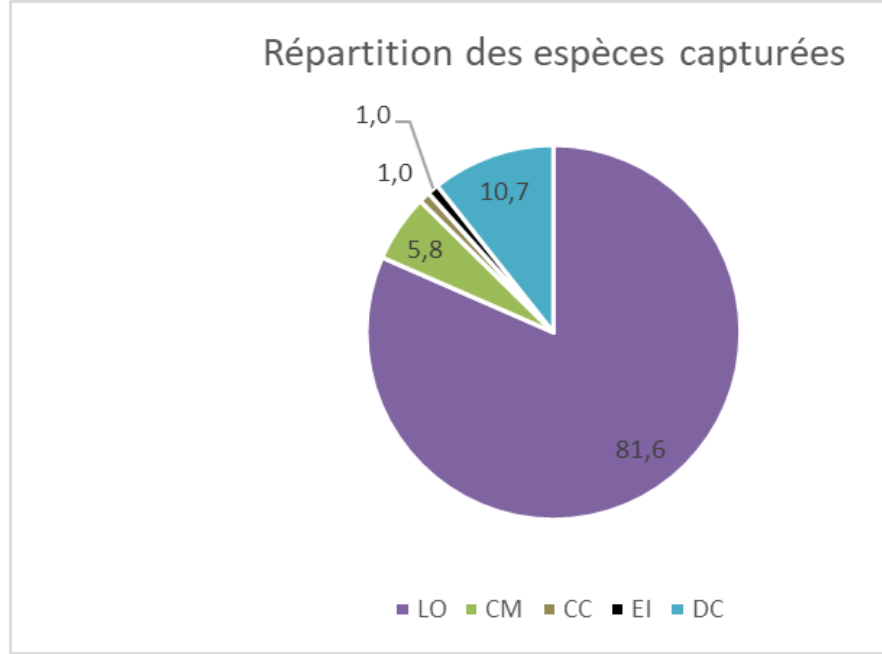
Captures estimées de tortues à partir du taux de capture estimé  
Toutes espèces confondues



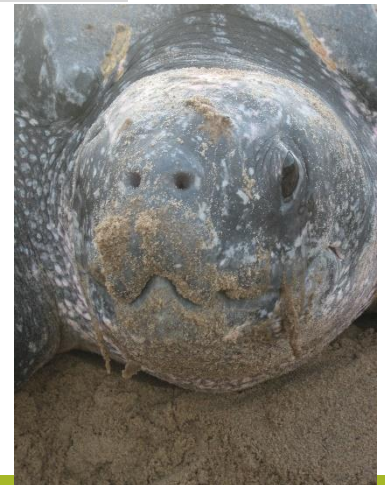


# Turtles bycatch by species before TEDs in FG

EI : imbriquée  
 CC : Caouanne  
 Dc : Leatherback



10.7 % leatherbacks  
 Mostly Olive Riddley 81%







Thanks for the opportunity to participate in this meeting and exchange with you!

