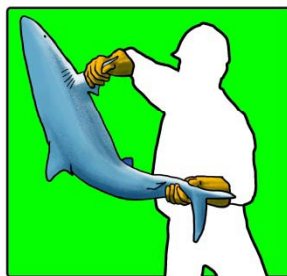


# Good practices to reduce the mortality of sharks and rays caught incidentally by the tropical tuna purse seiners

Poisson F., Vernet A. L., Séret B., Dagorn L.



Montpellier, 15-18 October 2012

# Objectives

- \* To identify and to propose:  
Methods, strategies and “tools” to facilitate the release of the bycatch and to reduce their mortality
  - \* Case study: Silky Shark survival estimates (10-20%)
  - \* The complexity of handling process increases also with the size of the individuals



- \* Manual dedicated to skippers and crew
  - \* Avoid injuries to the crew
  - \* Reduce bycatch mortality

# « Ultimate » goals

- \* To integrate these practices routinely as other regular tasks
- \* To increase the fishers' awareness about the preservation and the conservation of the biodiversity,
- \* To encourage their participation in the sustainable management of the marine resources.

# outline

- \* Methodology used to design this manual ,
- \* Brief presentation of the manual,
- \* The first positive impacts after the dissemination of the guide

# Information needed

- \* To document :
  - \* The conditions faced by sharks and rays
  - \* The current bycatch handling practices
  - \* The fishing strategy and fishing procedures
  - \* The structure of the vessels (equipment)  
(Applicable to the whole fleet)

# Method

- \* Available Documentation
  - Observers pictures database (Ecoscope programme)(IRD)
- \* trips at sea/visits at port
  - \* to get different crew members' perceptions on the by catch issue,
  - \* to document the existing mitigation developed onboard (fishers expertise),
  - \* to identify other mitigation opportunities,
  - \* to obtain feedback from the crew on proposed by catch mitigation approaches and on mitigation tools

# Fishing strategy/ Structure of the vessels

- \* No difference in the Fishing technique within the fleet
- \* The vessels were different in sizes and age
- \* workspace on the deck (e g limit access),
- \* notable differences among the vessels in regards to the basic equipment
  - brailer , size and capacity,
  - hopper shape,
  - Crane location and flying range
  - Door on the side of the boat,
  - Waste chute

# Are the existing systems appropriate?

Discarding sharks through the waste chute (in lower deck)

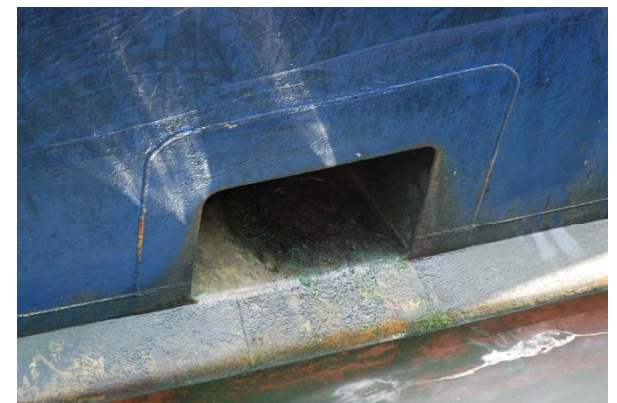


Non functional



# Waste chute neglected

- \* Instead of using the waste chute Sharks are put aside and discarded lately

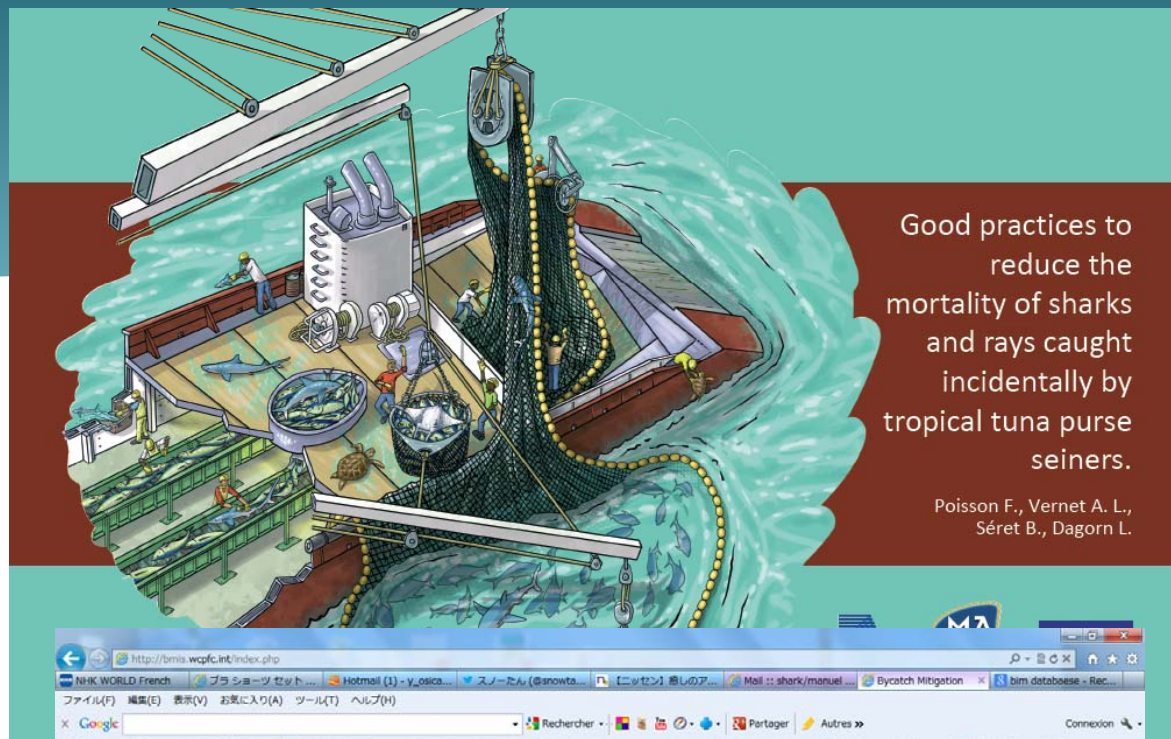


System is not standardized  
shape ? Location?



Could we increase the chance for sharks to survive by Improving their efficiency ???





Good practices to  
reduce the  
mortality of sharks  
and rays caught  
incidentally by  
tropical tuna purse  
seiners.

Poisson F., Vernet A. L.,  
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Screenshot of a web browser displaying the BYCATCH MITIGATION INFORMATION SYSTEM (BMIS) website. The browser window shows the URL <http://bmis.wcpfc.int/index.php> and several open tabs including "NHK WORLD French", "Hotmail", "スノーたん (@snowta...", "ニッセン 船しのア...", "Mail :: shark/manual...", "Bycatch Mitigation", and "bim database - Rec...".

The website header features the title "BYCATCH MITIGATION INFORMATION SYSTEM (BMIS)" and the Western and Central Pacific Fisheries Commission logo. A navigation menu includes links for Overview, What's in the BMIS, Links, User Help, Contact us, and Acknowledgements. Below this, a secondary menu lists categories: Marine Turtles, Seabirds, Sharks, Gear, General, Identification & Handling, Bycatch Databases, Asia Pacific, Research, RFMOs, and Videos.

A disclaimer states: "The inclusion of links on this page does not imply endorsement by WCPFC except where specifically noted." The main content area is titled "Identification & Handling Guides" and lists several resources:

- [FAO FishFinder](#) - resources to help identify marine organisms of interest to fisheries
- [Fisherman's Guide to Hawaii's Seabirds](#) - identification and handling information
- [Good practices to reduce the mortality of sharks and rays caught incidentally by the tropical purse seiners](#) - ID and handling information - [FRENCH version](#) - [POSTER version](#)
- [How to handle a hooked live bird](#) - factsheet from Birdlife International South Africa
- [Marine Turtle Identification cards](#) - ID and handling information
- [Pacific Islands Region Seabird Guide](#)

On the left side of the website, there are four blue buttons: "References", "Mitigation Methods", "Decisions & Regulations", and "Target & Bycatch Species". The WCPFC logo is visible in the bottom right corner of the website content area.

The browser's taskbar at the bottom shows the date and time as 4:21 on 2012/10/17.

## SMALL AND MEDIUM RAYS

### HOW TO HANDLE RAYS



➤ In the case of a small manta ray, which can be handled by 2 or 3 people, it is recommended to carry it by the side of the wings.



➤ Hold the ray far away from you in order to avoid lashes of the tail and the contact with the barbs.

\* The 'stinger' of the stingray is a barbed spine that is located at the base of its tail. Stingrays use their barbs as defensive weapons to protect themselves from sharks and other predators. The Stingray's barb is covered in a mildly venomous sheath of skin. When the barb is pushed into a foreign body the venom is dispersed. A sting from a stingray is painful regardless its size, but not very harmful. It is better to avoid the rear part of this fish and handle it by the head.



### DO NOT:



➤ Do not carry a ray by its tail: this is dangerous!



➤ Do not drag, carry or hold a ray only by its "cephalic lobes".

➤ Do not carry or drag the ray by inserting your hands in its gill slits.



➤ Do not insert a gaff or other pointed objects in the body.



➤ Do not expose the ray to the sun.



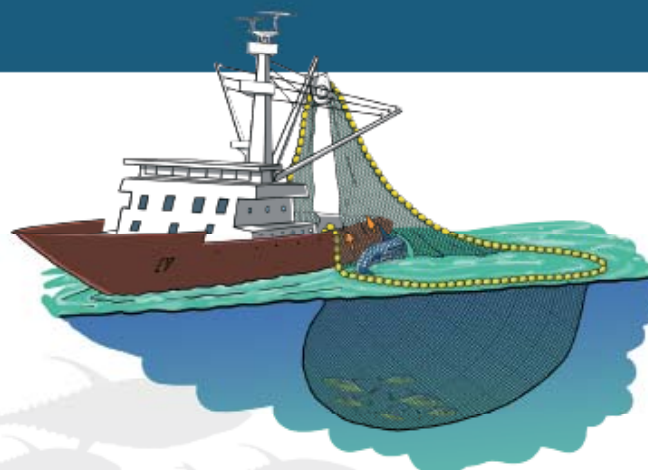
# WHALE SHARK

## HOW TO RELEASE WHALE SHARKS

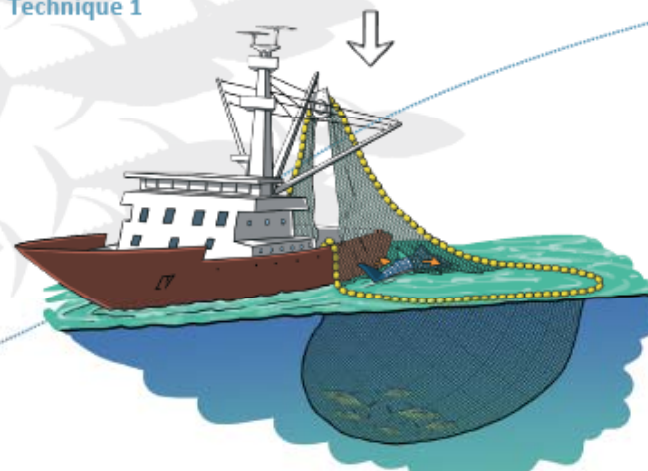
Some skippers experienced years of operation to release whale sharks from the net and sack without harming them. This way, they developed non-lethal techniques. The ones already in place are presented below.

**The first technique** is applied if the whale shark is at the surface and separated from the tunas. Either the shark tears the net by its weight and passes outside or, if the operation presents no danger, a crew member cuts a few meters of the net in front of the mouth of the shark to release it.

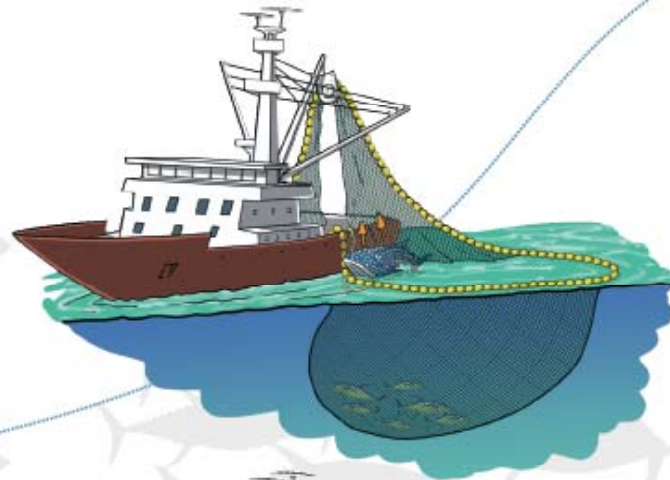
**For the second technique**, the crew in charge of the net hauling operation manages with the winch and the capstan to bring the whale shark close to the hull, to stand the animal on the net and to roll it outside the bunt. A rope placed under the animal and attached to the float line could help rolling the whale shark out of the net.



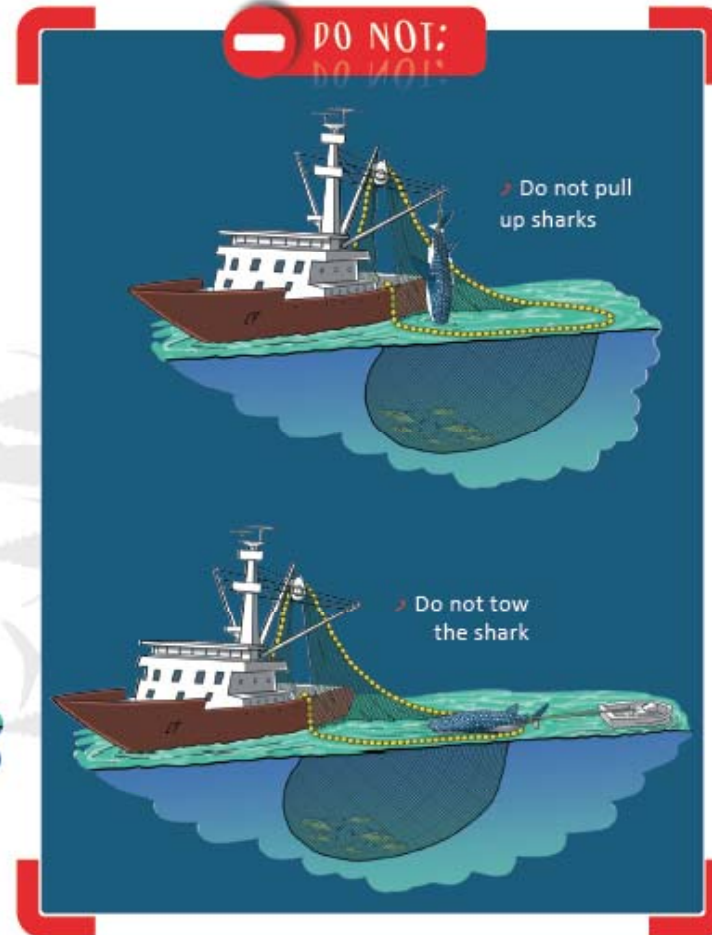
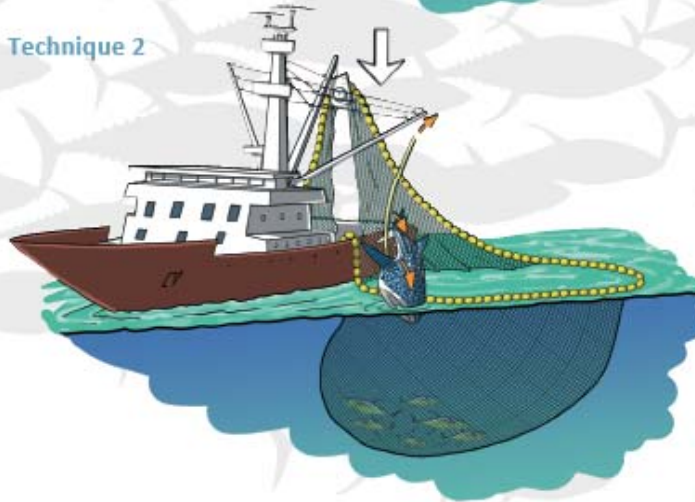
Technique 1







Technique 2



# Derived products

## TORTUES MARINES

### BONNES PRATIQUES

TENEZ LA TORTUE DE CHAQUE CÔTÉ DE SA CARAPACE.



REMETTEZ DÉLICATEMENT LA TORTUE À L'EAU.



SI VOUS RETARDEZ SA LIBÉRATION :

- GARDEZ SA PEAU ET SES YEUX HUMIDE À L'AIDE D'UNE SERVIETTE MOUILLÉE OU ARROSEZ-LA RÉGULIÈREMENT.



- SOULEVEZ L'ARRIÈRE-TRAIN DE LA TORTUE D'ENVIRON 20 CM AU-DESSUS DU PONT.
- MAINTENEZ-LA À L'OMBRE.

LES TORTUES MARINES PEUVENT ÊTRE MAILLÉES DANS LE DCP OU DANS LA SENNE :

- EXAMINEZ LE DCP.
- EXAMINEZ LE FILET AUSSI LOIN QUE POSSIBLE AFIN DE REPÉRER LES TORTUES MARINES RAPIDEMENT.
- APRÈS AVOIR APERÇU UNE TORTUE, DEMANDEZ IMMÉDIATEMENT À RÉDUIRE LA VITESSE DE VIRAGE POUR DIMINUER LA TENSION DU FILET, PUIS RETIREZ-LA SOIGNEUSEMENT. SI NÉCESSAIRE, UTILISEZ UN COUTEAU OU DES PINCES POUR COUPER LE FILET.
- SÉPARER LA TORTUE DU RESTE DE LA CAPTURE ET DES PRISES ACCESSOIRES.

### À ÉVITER

NE POSEZ PAS LA TORTUE À L'ENVERS.



N'EXPOSEZ PAS LA TORTUE AU SOLEIL.



NE LEVEZ PAS LA TORTUE PAR SES NAGEOIRES.



## LES RISQUES POUR L'ÉQUIPAGE

### RISQUES



PIQÛRE



MORSURE



COUP

### BONNES PRATIQUES

POUR VOTRE SÉCURITÉ :

- SOYEZ TOUJOURS PRUDENT LORSQUE VOUS MANIPULEZ UN REQUIN, QU'IL SOIT VIVANT OU MORIBOND.
- ÉVITEZ LES MÂCHOIRES.
- LIBÉREZ LE POISSON DÈS QUE POSSIBLE.

POUR CALMER UN REQUIN VIGOUREUX, COUVREZ-LUI LES YEUX AVEC UN MORCEAU DE CHIFFON DOUX, HUMIDE ET SOMBRE. MAIS N'APPUYEZ JAMAIS SUR SES YEUX !



POUR ÉVITER LES MORSURES D'UN REQUIN, PLACEZ UN POISSON MORT (LISTAO) OU UN GROS BÂTON ENTRE SES MÂCHOIRES POUR L'EMPÊCHER DE MORDRE ET POUR LE MANIPULER EN TOUTE SÉCURITÉ.



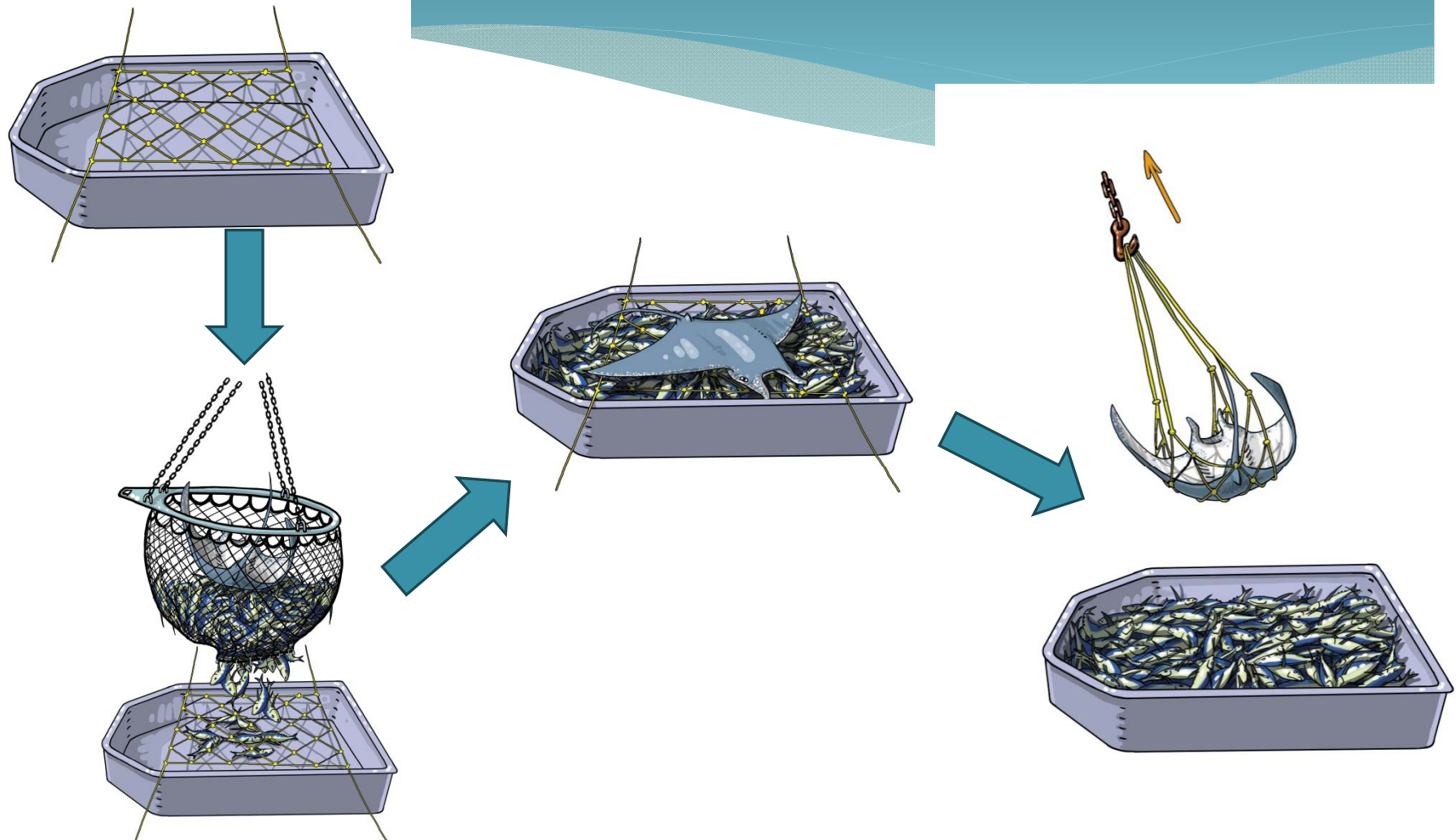


[video](#)

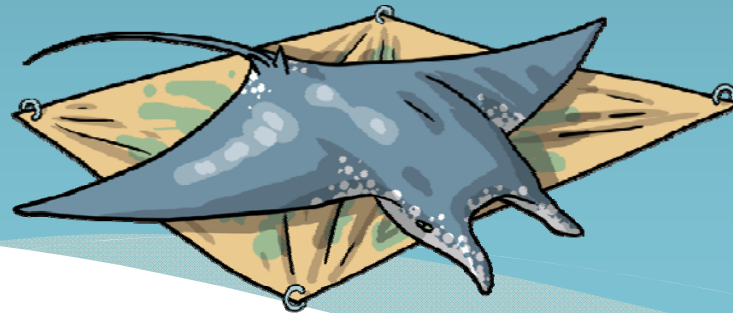
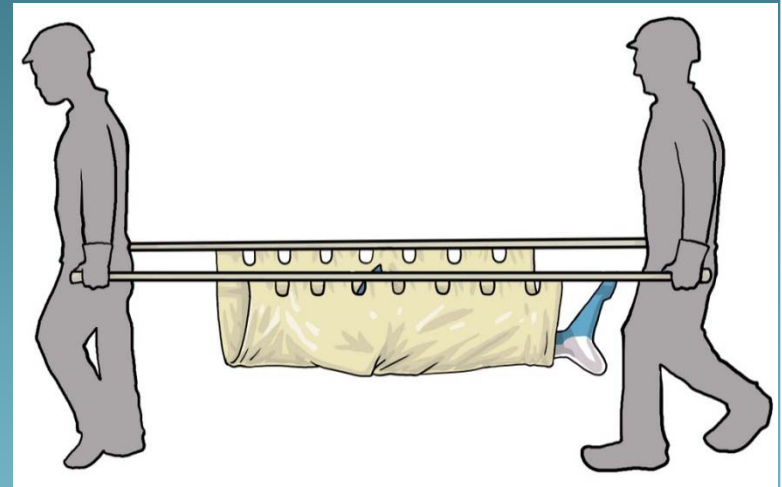
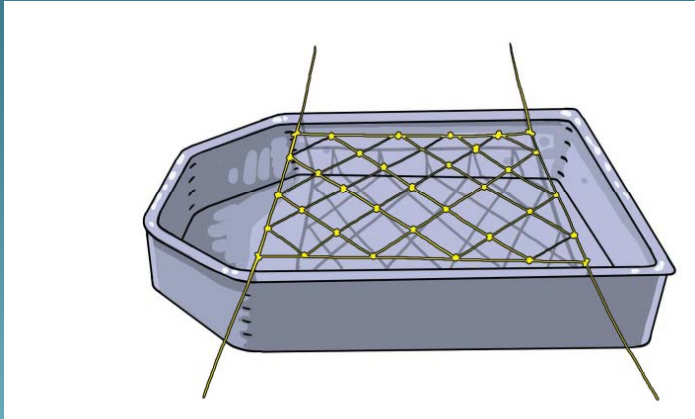


# Cargo net

skipper and crew of the San Nanumea (Sanford Ltd)



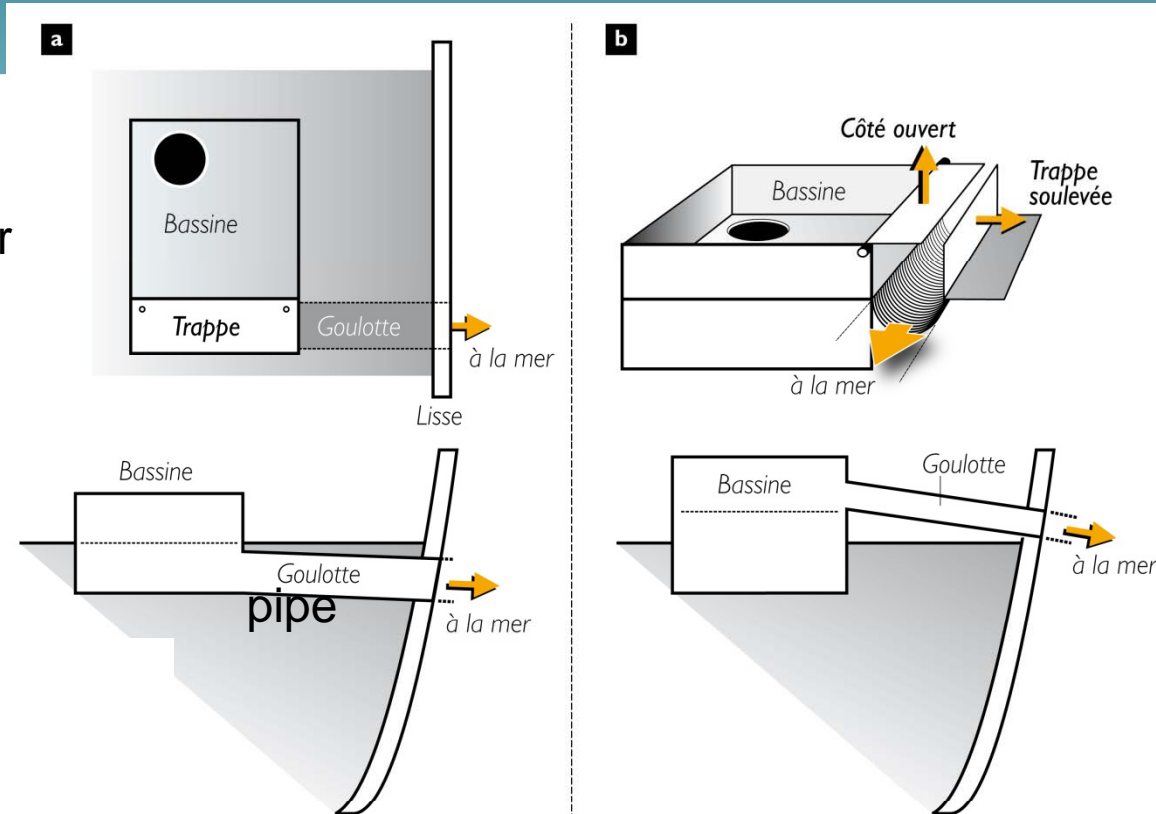
# design prototypes/ Test on the field



Just the beginning of the process

# Technical modifications “Deck Discard Device”

Hooper



To be validated by expert in fishing technology !!

# Conclusion

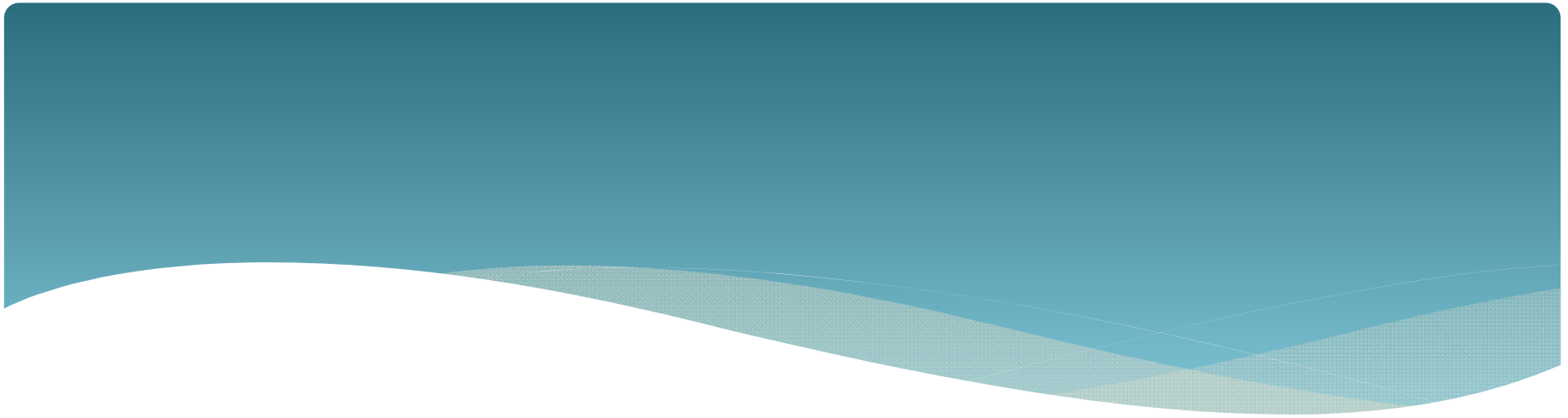
- \* Problem has been addressed through field observations, inspection of the vessels, records of current discarding practices and through interviews.
  - \* The process of engaging fishers and their knowledge proved in this study very effective
  - \* Beginning of the process: Transfer and monitoring:
    - \* Training courses / development of tools /test on the field/post implementation monitoring
  - \* New ideas emerged from scientists/fishers exchanges -----
- Version 2

# Acknowledgements

We would like to express our deepest gratitude to CMB, SAPMER and the skippers and crew of the MENGOE , GUERIDEN, MANAPANY, BERNICA and TORRE JULIA who volunteered to allow us on board their vessels and to all people involved in the preparation of the trip.

Thanks to the Ecoscope team

Thanks to Dr . E Jones and the skipper and crew of the San Nanumea (Sanford Ltd)



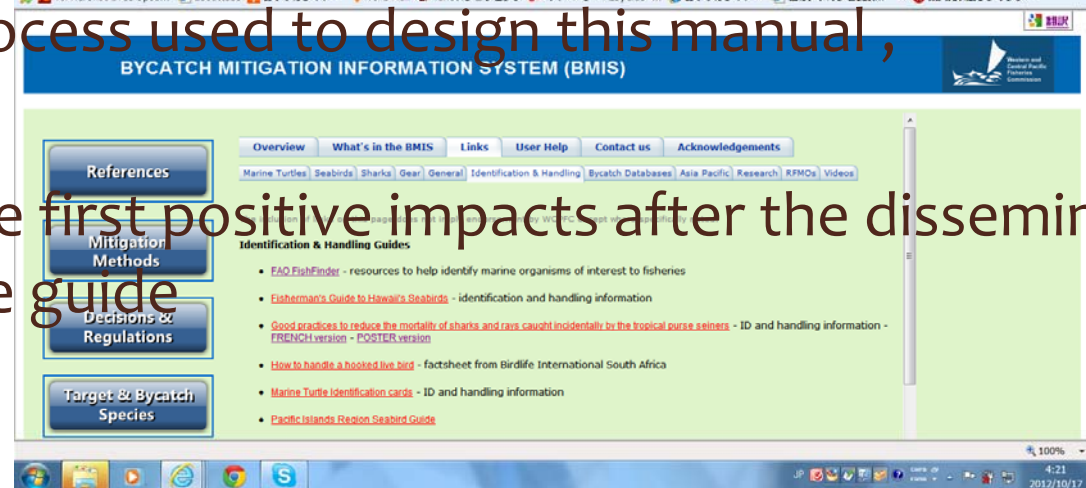


# Technical modifications

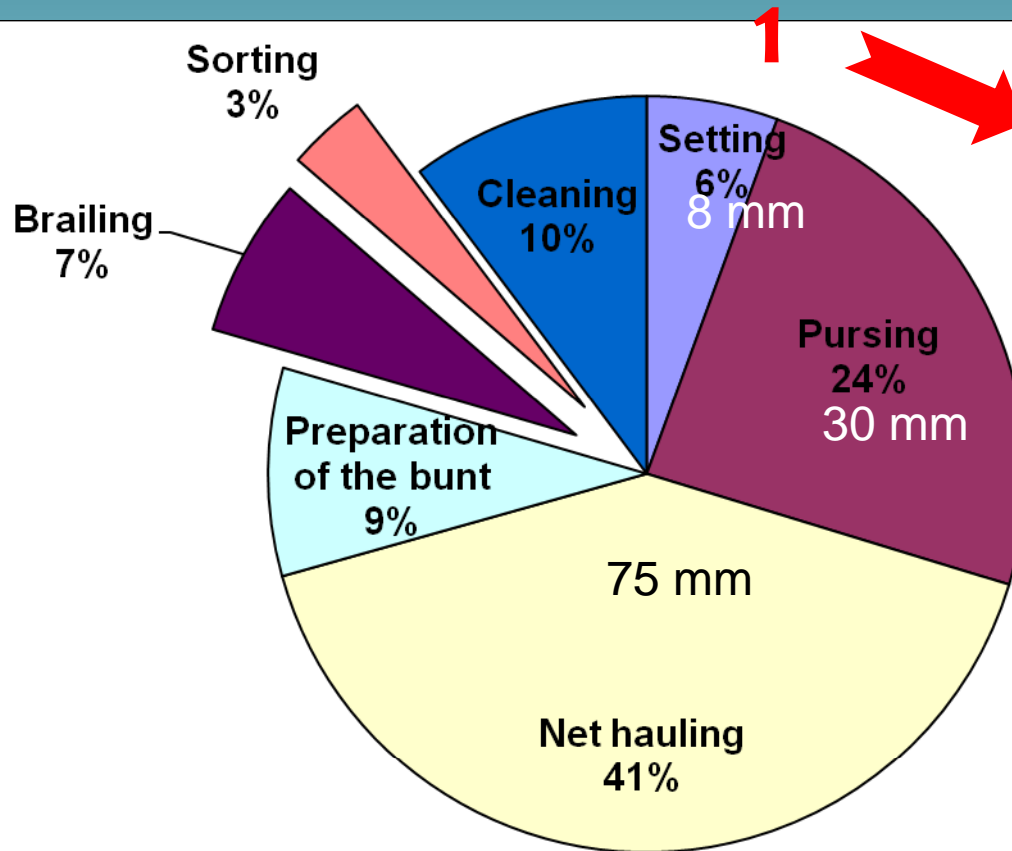


\* Process used to design this manual,

\* The first positive impacts after the dissemination of the guide







**Timing for the common phases of the fishing process**

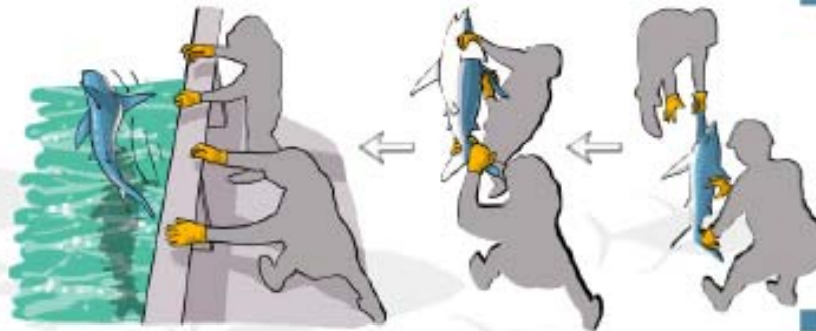
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## MEDIUM PELAGIC SHARKS

### HOW TO HANDLE AND RELEASE SHARKS

➤ Medium sized fish can be handled by two persons : one crew member holds the dorsal fin and the pectoral fin, keeping well away from the head, and the second crew grabs the tail.



### If you are obliged to delay its release:

- prevent the animal from battering itself on the deck and surrounding hard objects,
- place the animal in the shade and water it regularly,
- use a hose placed in the jaw with a moderate flow of water if you want to delay its release.



### HOW TO CALM DOWN A VIGOUROUS SHARK

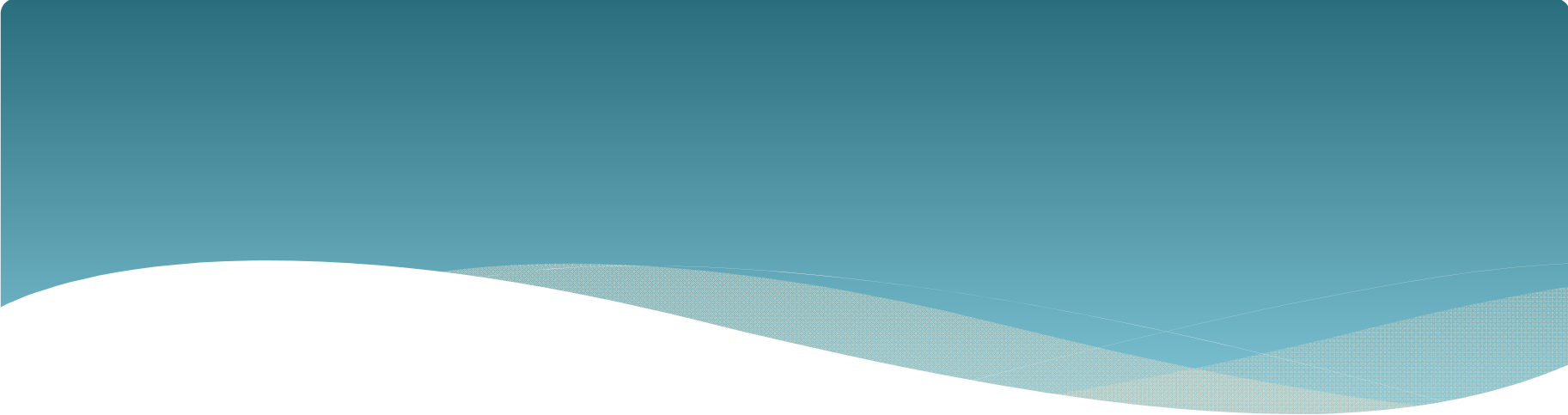
- Cover the shark's eyes with a piece of smooth, wet and dark cloth. Never press this against the eyes.

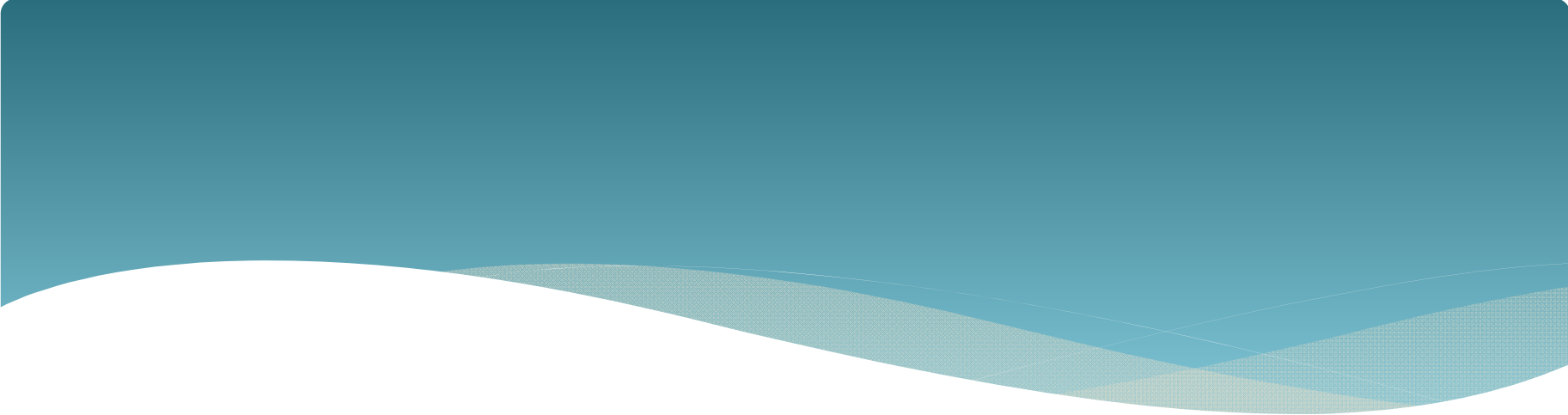


### HOW TO PREVENT SHARK BITES

- A dead fish (skipjack) or a big stick placed between the jaws prevents it from biting and will allow it to be handled safely.



- 
- \* crew are likely to improve their handling practices
    - \* not especially time consuming or difficult to employ.

- 
- \* Methods that cause a rapid loss of sensibility result in the best welfare, providing that they are carried out correctly. They may also produce the highest quality product from the stock offish.

# Acknowledgements

We would like to express our deepest gratitude to CMB, SAPMER and the skippers and crew of the MENGOE MANAPANY BERNICA and TORRE JULIA who volunteered to allow us on board their vessels and to all people involved in the preparation of the trip.

Thanks to the Ecoscope team for having provided pictures

"We also acknowledge the skipper and crew of the San Nanumea (Sanford Ltd) for their idea for releasing manta rays."

# investigations

- \* Available Documentation
- \* Trips at sea onboard commercial vessels
- \* Interviews of the skippers, crews and observers
- \* Inspection of the vessels during landing operations



**DO NOT:**

Do not insert a gaff or other pointed objects in the body, jaw or gills to carry or drag the animal.

Don't expose animals to physical trauma (do not throw it, whatever the distance; do not push it too harshly; and avoid squeezing fish around the belly, as this can damage internal organs, etc.).

