

Protocol for Handling Sharks in MACE Surveys

Last Updated: 4/28/2023



Statement of Purpose: Shark catches in midwater trawls is a rare occurrence, and the goal is to release the shark alive and unharmed in a manner that ensures the safety of the deck crew and members of the science party. Successful execution of this operation requires close coordination between the crew and scientists to ensure personal safety and a timely release of the animal.



Shark in the Bag

- **Small trawl catch: open codend on deck at least 10 feet forward of the trawl ramp gate to pull out shark**
 - Do NOT dump codend under net reel or near trawl ramp
- **Large trawl catch: use splitter strap & crane to separate shark from bulk of catch to minimize mess on deck**
 - Safer, easier, & faster to clean up deck instead of pulling a shark out of the hopper

Shark in the Hopper

- Lift shark out of hopper, by hand or using shark sling and crane
- Do NOT pull shark out by tail

Shark on Deck

- follow Do's & Don'ts of shark handling



Photo: Matthew Phillips, NOAA

Protecting the shark

Do...

... cover the eyes to calm energetic sharks

- Place a wet towel over the head
- Gently cover eyes with hands while standing in front of shark
- Okay to push down on head w/ heels of your hands if shark is flopping/thrashing

... clear away obstacles from the deck that the shark could slam against

... place a saltwater hose in mouth if release is delayed



Photo credit: NOAA



Photo credit: Matthew Phillips, NOAA



Illustrations: Poisson et al. 2012

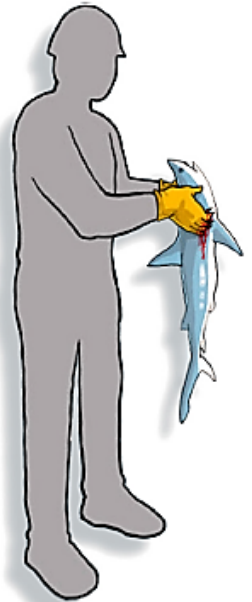
Protecting the shark

Do *NOT*...

... lift the shark by its head or tail



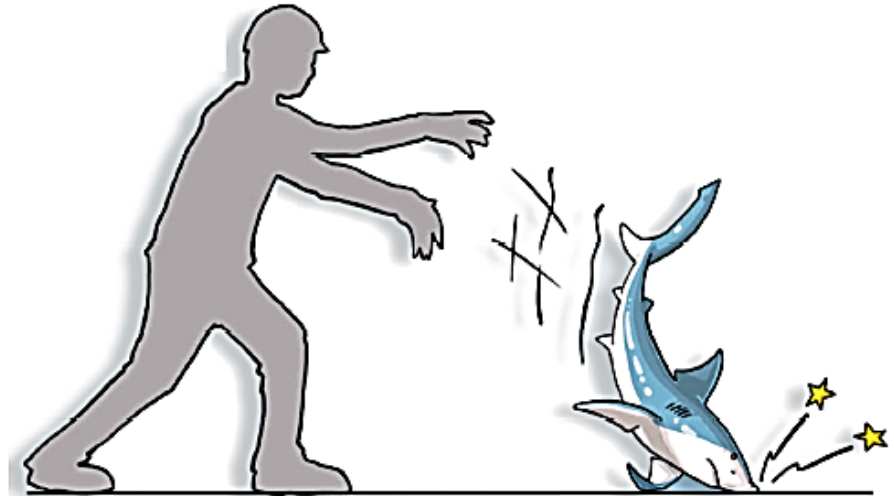
... insert hands or objects in the gill slits



... yank, push, throw, hit, or squeeze shark

If necessary, it is okay to:

- push on shark's back (not the abdomen) to slide across deck
- pull on the tail in a controlled manner to reorient the shark



Protecting yourself

Do **NOT**...

... get slapped or knocked around

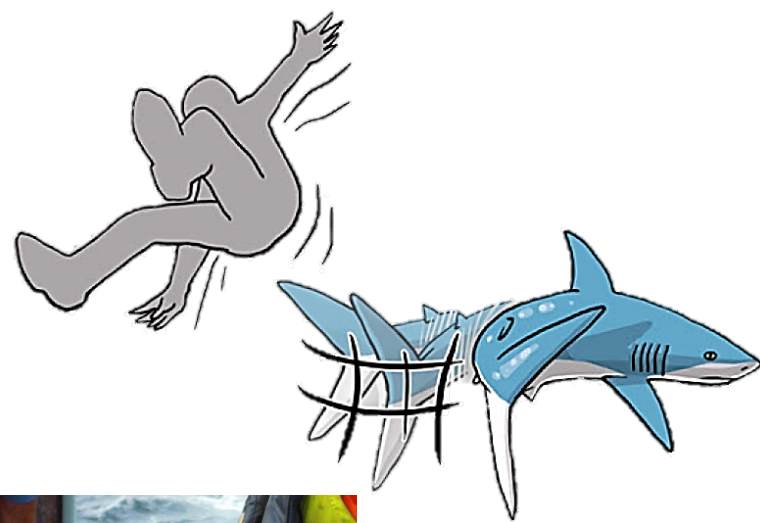
- Avoid standing over & straddling a shark
- Stand back from a green shark on its side, it can jump +3' off the deck



Photo credit: NOAA

... (repeat, **DO NOT**) get bit!!!

- Stay alert, a calm shark can suddenly lunge at you or anything nearby



Biological Data Collection

- ID species, note sex
- Measure total length (TL)
 - PCL & FL if time allows
- Weigh if small enough, otherwise refer to length-weight table (Goldman & Musick, 2006)

* Only collect data that can be done quickly & safely, supplement with a photograph for later examination

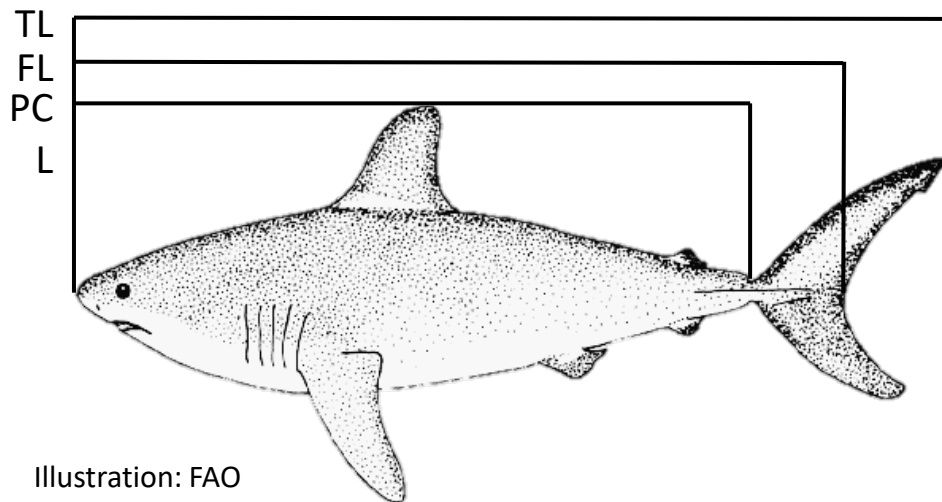


Illustration: FAO

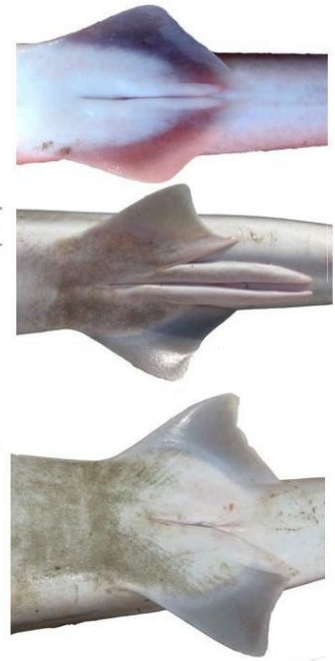
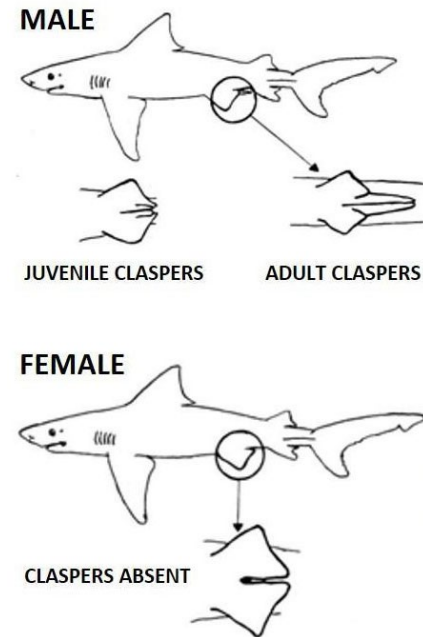


Figure: NOAA

How to Move a Large Shark on Deck

Can shark be slid on deck?

Yes:

- Spin shark to reorient head towards stern, 2 or more people slide it across deck w/ one hand on pectoral fin & other on dorsal fin or body

*** TIP:** Use deck hose to direct water under shark body & wet non-slip mat to aid sliding across the deck



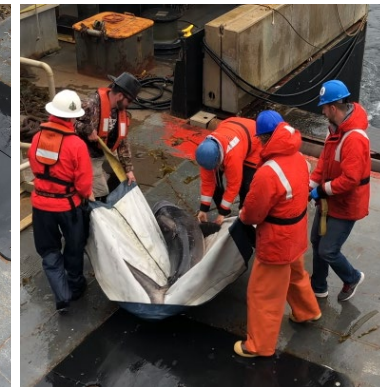
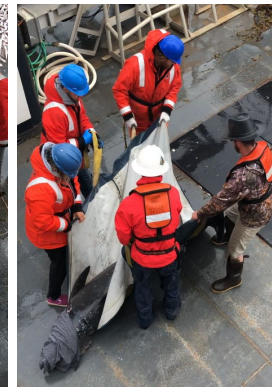
Photos: Jeanette Gann



Photo: Matthew Phillips, NOAA

No

- Slide shark sling under body, lift w/ 4 or people to edge of trawl ramp
- Use the shark sling & crane to lift it to edge of trawl ramp



Photos: NOAA

How to Release a Large Shark

**Reorient shark
towards stern**



Photos: Jeanette Gann, NOAA

**Position shark headfirst
on gate roller**



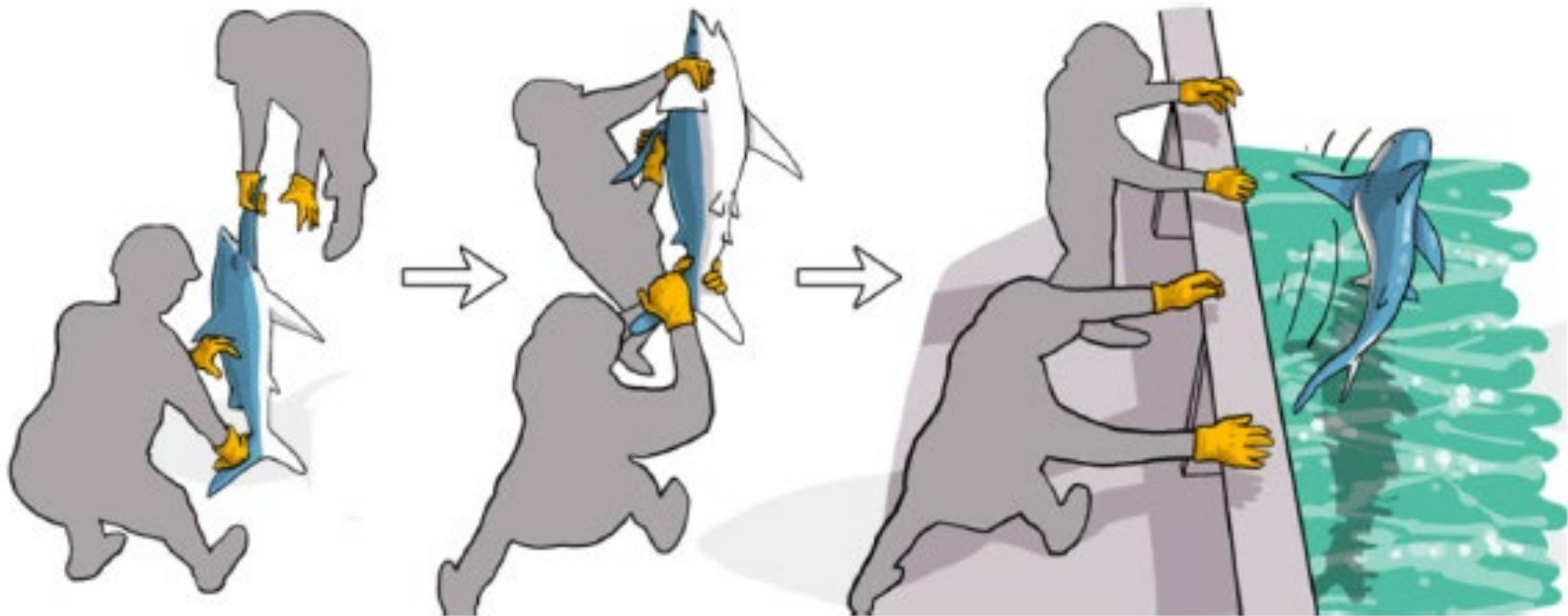
Photo: Matthew Phillips, NOAA

**Raise gate to release
down trawl ramp**



How to Release a Medium-sized Shark

Two-person lift over the side



Illustrations: Poisson et al. 2012

- 1st person holds the dorsal & pectoral fins, 2nd person holds the tail.
- Drop the shark in headfirst, do NOT throw it.

How to Release a Small Shark



Use both hands

One hand holding a pectoral fin & the other hand the tail



One hand holding the dorsal fin & the other supporting the body



Both hands supporting the body



- Release shark headfirst, pointing the head straight down if possible.
- Just drop the shark, do **NOT** throw it.



References

- Goldman, K. J. and J. A. Musick. 2006. Growth and maturity of salmon sharks (*Lamna ditropis*) in the eastern and western North Pacific, and comments on back-calculation methods. *Fishery Bulletin* 104(2):278-292.
- Poisson, F., A. L. Vernet, B. Séret, and L. Dagorn. 2012. Good practices to reduce the mortality of sharks and rays caught incidentally by the tropical tuna purse seiners. EU FP7 project #210496 MADE, Deliverable 7.2., 30p.