



Marine Turtle Bycatch Research WWF Guianas 2010 - 2011

Focus: Artisanal (gill net fleet)
& Industrial (Fish and Shrimp Trawlers)





Why an interest in marine turtle bycatch in the Guianas?

- ~3,000 leatherback nests annually
- ~ 4,000 green turtle nests annually



The fisheries sector of Suriname is divided in Artisanal and Industrial sector.

Artisanal sector



Open Guyana type



Decked Guyana type



Industrial Sector: Shrimp – Atlantic Seabob shrimp (*Xiphopenaeus kroyeri*) and Penaeid shrimp (*P. subtilis*, *P. brasiliensis*, *P. schmitti*)





Industrial Sector: Fish Trawlers





Venezuelan Hand Liners





Bang Bang – *Cynoscion acoupa*



Kandratiki – *Cynoscion virescens*



Trapoen – *Megalops atlanticus*



WWF Approach

Information Gathering

- Monitor fisheries by-catch in key fisheries
- In collaboration with all players in the sector

Evaluation of Findings

- Assess degree of severity of the bycatch
- Share information obtained. Ensure transparency

Solutions

- Identify and test possible solutions
- Seek stakeholder participation



Gill Net Bycatch: Challenges

- Many illegal fishermen
- Crew not registered or licensed – no ownership of the resource
- IUU fishing reported to be ~300 boats



Discussing the Issues (Gill Netters)





Education and Raising Awareness on Marine Turtle Conservation





Team Building: Together we will find a solution





Tackling the **Fish Trawl** Fisheries Challenges

- Harder to reach
- Provided with questionnaires – few returned
- Chinese receive more and more licenses – fish long hours every day; fish in relatively shallow water; VMS devices often turned off.
- Crew speak neither English, Dutch or Surinamese – public information tools cannot be used or must be translated
- Crew spends only a few hours on land – difficult to arrange meetings
- Boat owners fail to keep appointments





Bycatch Data Collecting

- Onboard observers - trawlers
- Data collectors coastal fleet / gill net fleet



Results of data gathering 2010 Suriname

How serious is the problem?

No turtles observed landed
by shrimp trawlers – use of
TEDs mandatory

Turtles captured by fish
trawlers on multiple
occasions when observers on
board

Total number of days at sea =
Total number of days
observed =





Images taken by On Board Observers





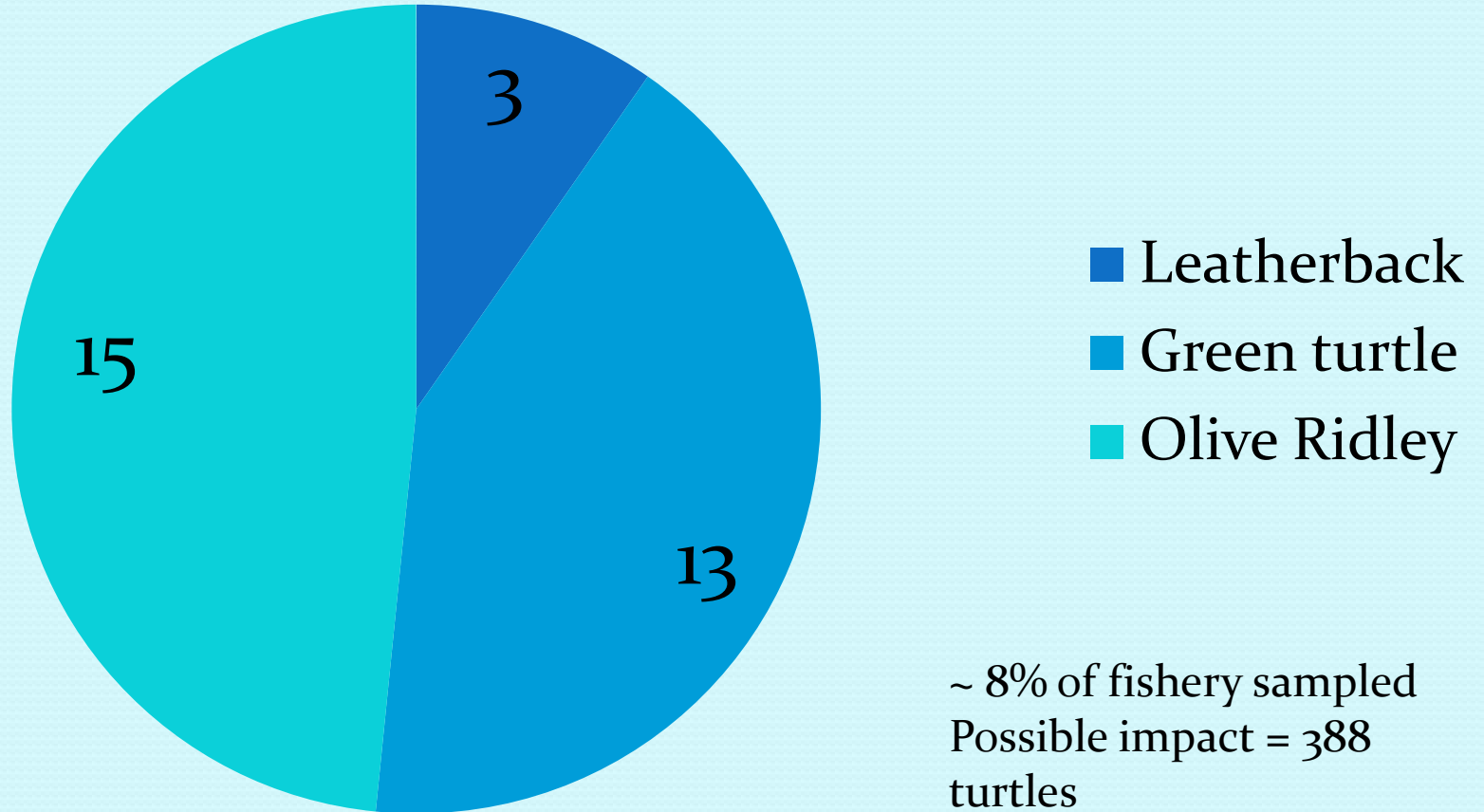
Chinese trawlers fish off shore (~ 15 fathoms) and around the clock, 7 days a week

Disposing of the carcass





Bycatch of marine turtle species observed in fish trawlers Feb - Sept 2010

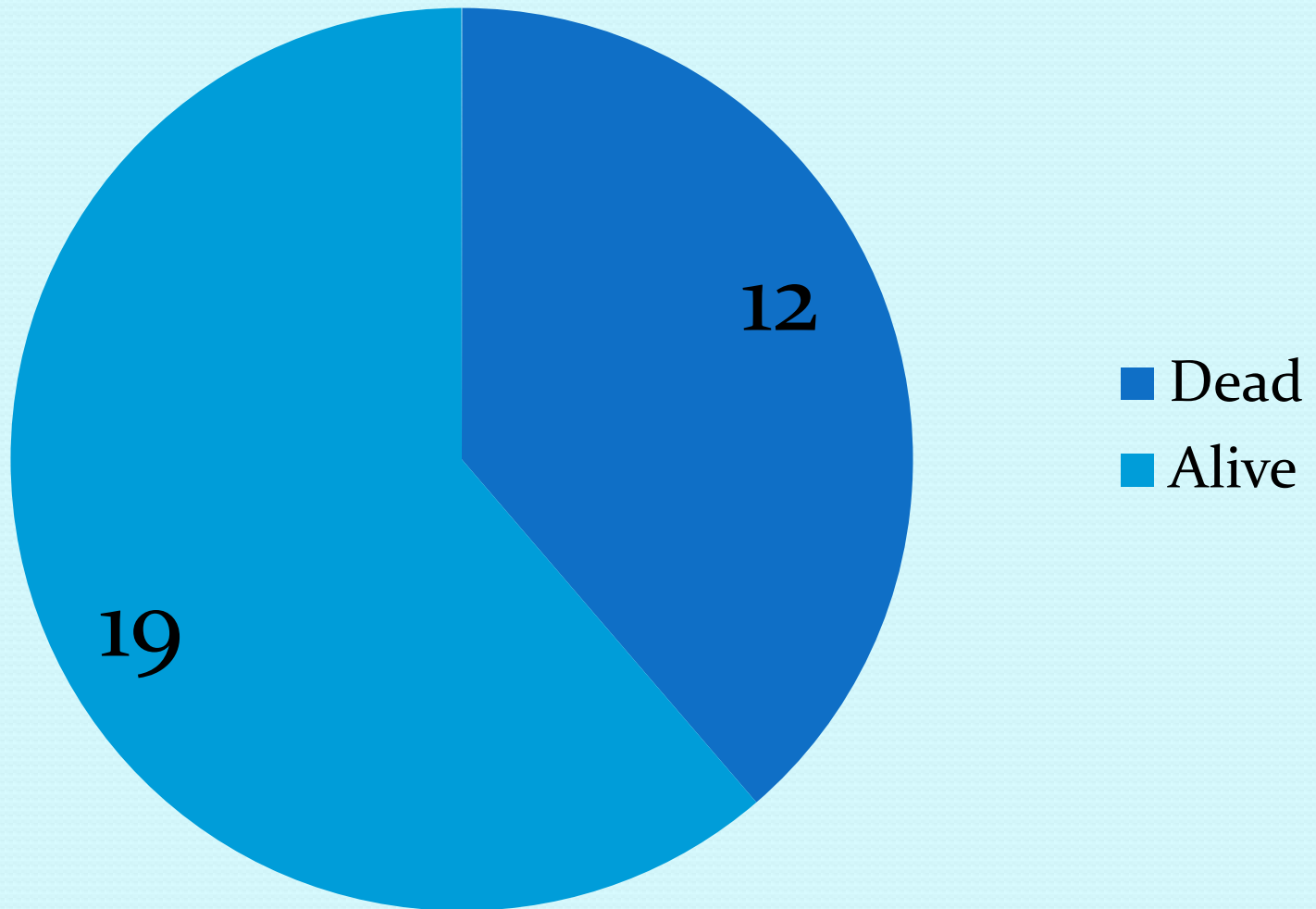


~ 8% of fishery sampled
Possible impact = 388 turtles

Leatherback, <i>Dermochelys coriacea</i>	3
Green, <i>Chelonia mydas</i>	13
Warana, <i>Lepidochelys olivacea</i>	15



Survival of marine turtles observed in fish trawling by catch, Suriname Feb - Sept 2010



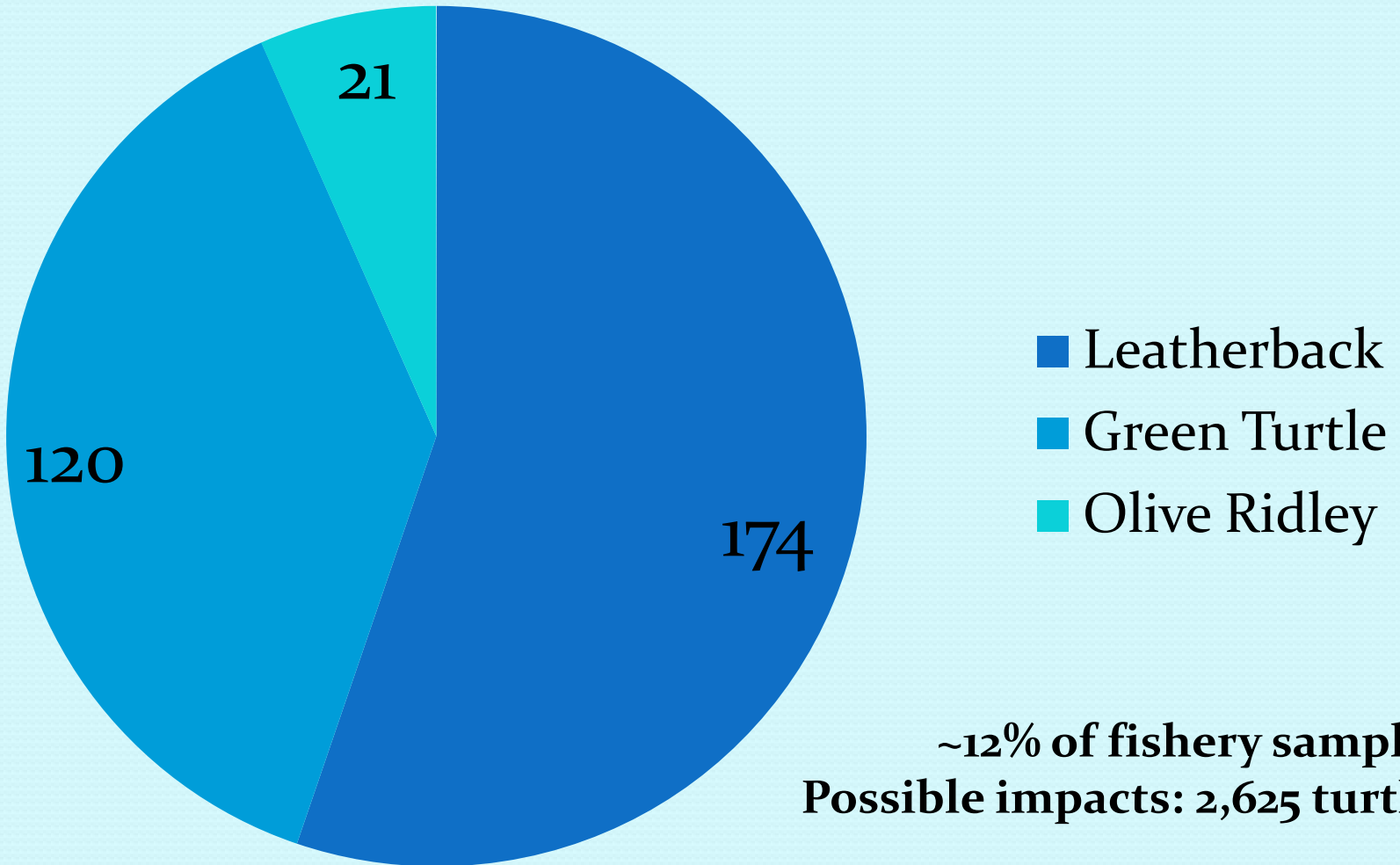


Results:

Gill Nets



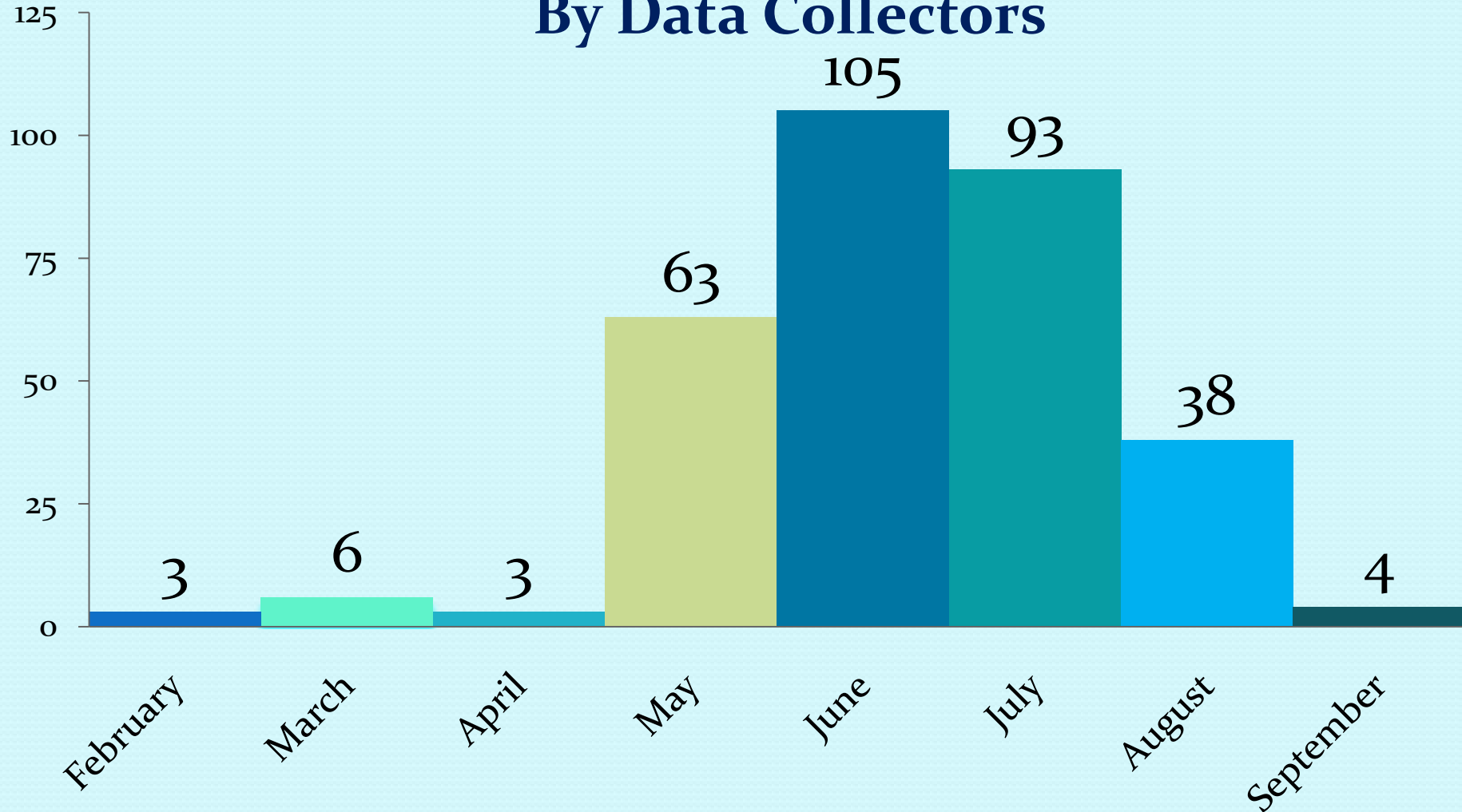
Marine turtle species reported caught in gill net fisheries from Feb. – Sept 2010



~12% of fishery sampled
Possible impacts: 2,625 turtles

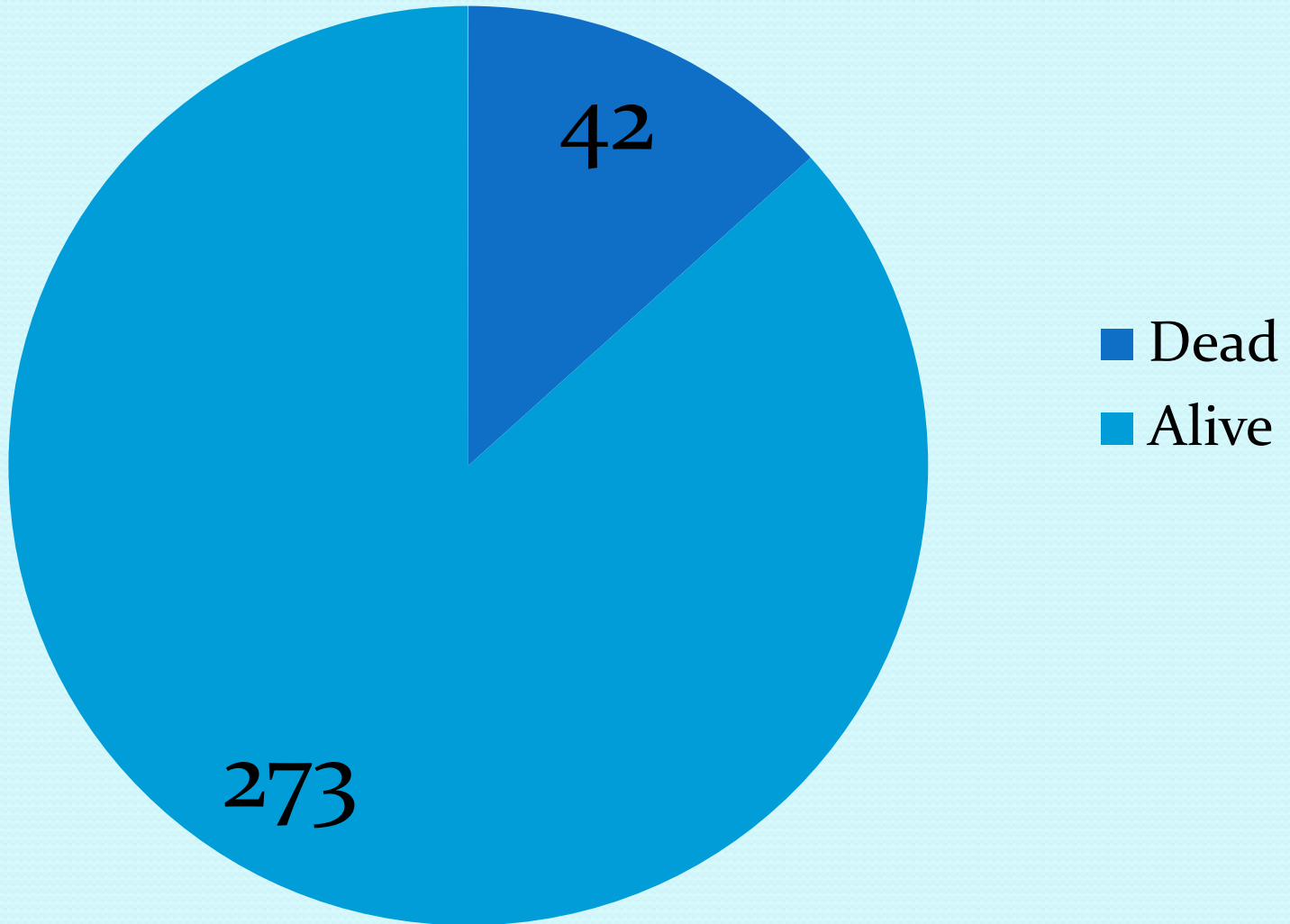


Total Numbers Of Turtles Reported Entangled in Gill Nets Data Provided By Data Collectors





By catch of marine turtles in gill net fisheries from Feb. – Sept, 2010



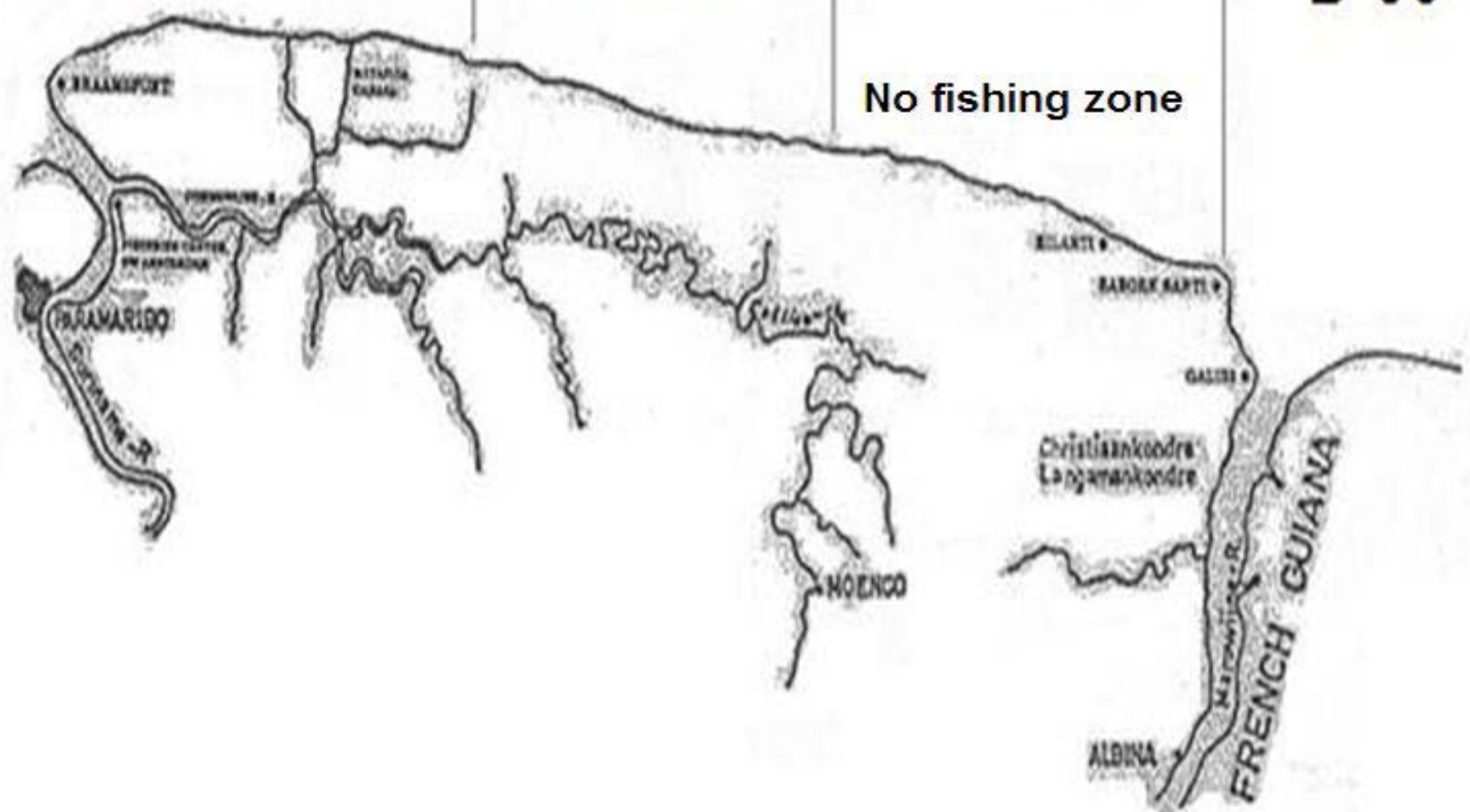


A 80

B 58

C 147

D 30





Presentation of Results to Fishermen





Recommendations coming from dialogue with fishers

- To discuss the findings of this report with all the stakeholders.
- To increase the awareness among boat owners and fishermen regarding protection of turtles.
- To put some markers (buoys) to mark the closed area (NFZ), and to include the coordinates on the fishing license. This may be useful as recently a number of boats are using GPS.



Recommendations coming from dialogue with fishers cont'd

- Try to find a way to warn the turtles for the fishing nets.
- Support efforts to increase the survival of turtles as a whole.
- Minimize the poaching of turtle eggs.
- Discourage the consumption of turtle eggs by the public.
- Increase the surveillance in the sea area as well on land/roads.
- Create short radio or television programs to reach all fishermen.
- Try to test different netting material.



Some Initial work with fishermen...

Inverting turtles in order to help them revive



Fishermen have embraced this suggestion





Releasing turtles safely when possible





Addressing Gill Net Bycatch

Gill net 1.5 km long vs 3 -4 km

Gill net with 200m panels interrupted by 5m spacing to enable turtles to escape





Construction of the Experimental Gill Net





Fishermen observe completed net



Two volunteer fishermen and fisheries expert discuss deployment





Testing Adapted Gill Nets

- Two fishers
- Comparison with regular gill net
- Agreement to test from March – August, 2011
- Data observers to observe fishery
- Captains to photograph deployment and retrieval of net
- Landed catch to be “notched”.
- Weight of catch from boats obtained at landing sites.



Addressing Fish Trawl Bycatch

Design and construction of a flexible TED:

- Features: bends down the middle to fit on net drum
- Larger spaced bars to capture the large-sized fish
- Larger diameter outer frame to fit larger nets



Testing Adapted FFF TED

- TED construction and testing in collaboration with NOAA
- Testing planned to take place on a fish trawler in Suriname in May 2011
- Results to be presented in a seminar with all fish trawlers, Dept. of Fisheries officials and WWF



French Guiana

Results for French Guiana coastal gill net observer work (2007 - 2010)





Observations of the interactions at sea are the best way to understand the problem. (find solutions)

- For leatherbacks caught by coastal gill nets
 - ✓ 20% (minimum) taken in the float lines minimum (floats are bitten ?)
 - ✓ 86% takes at night
 - ✓ 60% direct mortality



- Artesian fishermen from Maronie Estuary adapt their strategy during nesting season:
 - Reduce fishing activities at night
 - Reduce fishing activities at high tide
 - Change fishing grounds

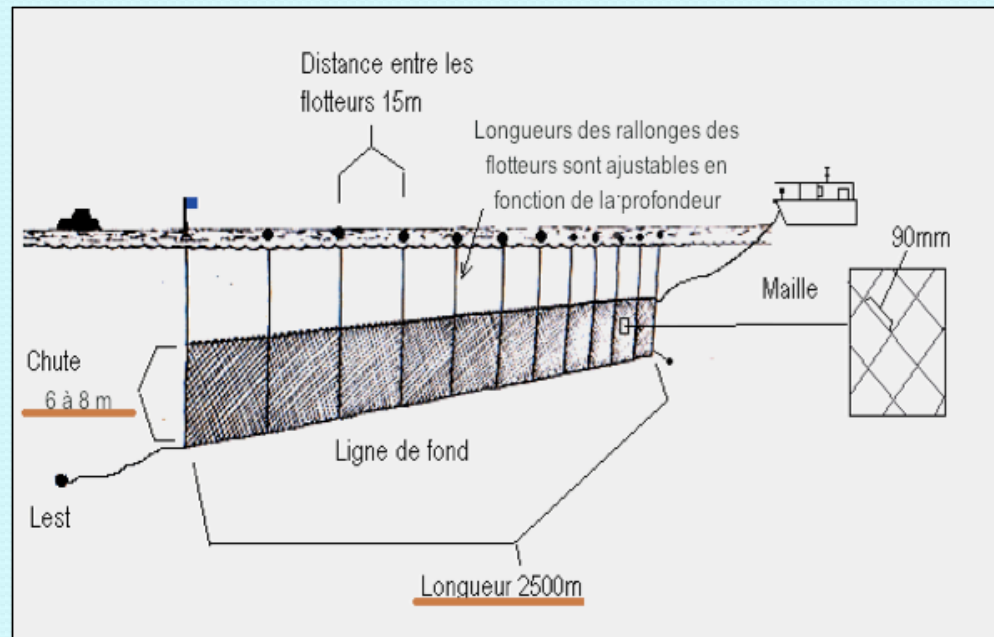




Alternatives Methods to be tested

Eliminate float lines. Put the floats directly on the net. -20% of leatherback interactions ?

Reduce vertical profile. Take off 2 meters from the top. – turtle interactions - fish ?





Bycatch Research Planned for Guyana

- Assess turtle entanglement in the Gill Net Fishery
March – September 2011
- Development and implementation of onboard
observer programme on shrimp trawlers. May –
September 2011. (No fish trawlers exist in Guyana.)
- If results of testing are encouraging, testing of
adapted gill net. Feb – July 2012.
- Satellite tracking of turtles during nesting season to
assess location of turtles offshore.