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

<table>
<thead>
<tr>
<th>Species</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leatherback, <em>Dermochelys coriacea</em></td>
<td>3</td>
</tr>
<tr>
<td>Green, <em>Chelonia mydas</em></td>
<td>13</td>
</tr>
<tr>
<td>Warana, <em>Lepidochelys olivacea</em></td>
<td>15</td>
</tr>
</tbody>
</table>
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

- Leatherback: 174
- Green Turtle: 120
- Olive Ridley: 21

~12% of fishery sampled
Possible impacts: 2,625 turtles
Total Numbers Of Turtles Reported Entangled in Gill Nets Data Provided By Data Collectors

- February: 3
- March: 6
- April: 3
- May: 63
- June: 105
- July: 93
- August: 38
- September: 4
By catch of marine turtles in gill net fisheries from Feb. – Sept, 2010

- Alive: 273
- Dead: 42
No fishing zone
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.