2019 REGIONAL LEATHERBACK BY-CATCH PRIORITIZATION WORKSHOP
PARAMARIBO, 17 – 18TH OF MARCH 2019

COUNTRY PRESENTATION:
CANADA
Organizations: WWF-Canada
FORAGING AREA – NW ATLANTIC

- Leatherbacks frequent a very large area within Canadian waters
- Managed by four different regions within Fisheries and Oceans Canada (Maritimes, Gulf, Newfoundland, Quebec)

Newfoundland Shelf
Gulf of St. Lawrence
Scotian Shelf

FORAGING AREA – NW ATLANTIC


LEATHERBACK BYCATCH — OBSTACLES TO REDUCTION

- Lack of data
  - Low observer coverage
  - Disincentives for fishers to report interactions
  - Lack of enforcement for reporting
- Very large fishing fleets spread across large area and 4 different reporting areas
Archibald and James (2016) MEPS


<table>
<thead>
<tr>
<th>Year</th>
<th>Abundance estimate [95% CI]</th>
<th>Density estimate (individuals for 100 km²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>125 [119-130]</td>
<td>8.3</td>
</tr>
<tr>
<td>2007</td>
<td>570 [530-609]</td>
<td>37.9</td>
</tr>
<tr>
<td>2008</td>
<td>80 [76-84]</td>
<td>5.3</td>
</tr>
<tr>
<td>2009</td>
<td>137 [128-146]</td>
<td>9.1</td>
</tr>
<tr>
<td>2010</td>
<td>52 [50-55]</td>
<td>3.5</td>
</tr>
<tr>
<td>2011</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2012</td>
<td>135 [127-142]</td>
<td>9.0</td>
</tr>
<tr>
<td>2013</td>
<td>56 [53-58]</td>
<td>3.7</td>
</tr>
<tr>
<td>2014</td>
<td>149 [142-155]</td>
<td>9.9</td>
</tr>
<tr>
<td>2015</td>
<td>18 [17-19]</td>
<td>1.2</td>
</tr>
</tbody>
</table>
LOCAL FISHERIES – BYCATCH IMPACTS

Fisheries implicated in leatherback entanglement, 1998 – 2014. Data from citizen reporting networks

<table>
<thead>
<tr>
<th>Fishery</th>
<th>Frequency</th>
<th>% of entanglements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pot trap</td>
<td>91</td>
<td>44.4</td>
</tr>
<tr>
<td>Trap net</td>
<td>53</td>
<td>25.8</td>
</tr>
<tr>
<td>Gill net</td>
<td>24</td>
<td>11.7</td>
</tr>
<tr>
<td>Groundfish longline</td>
<td>7</td>
<td>3.4</td>
</tr>
<tr>
<td>Rod and reel</td>
<td>4</td>
<td>2.0</td>
</tr>
<tr>
<td>Bait net</td>
<td>3</td>
<td>1.5</td>
</tr>
<tr>
<td>Aquaculture</td>
<td>3</td>
<td>1.5</td>
</tr>
<tr>
<td>Offshore lobster</td>
<td>2</td>
<td>0.98</td>
</tr>
<tr>
<td>Other/unknown</td>
<td>18</td>
<td>8.8</td>
</tr>
</tbody>
</table>

- Data are from citizen reporting networks:
  - Canadian Sea Turtle Network (Nova Scotia based) and
  - Whale Release and Strandings (Newfoundland based)
- Data does not include impacts from pelagic longline
LOCAL FISHERY CHARACTERISTICS

Pot trap

**Lobster:** Newfoundland Shelf, Gulf of St. Lawrence, Scotian Shelf
landings of 97,452 mt; 8,802 licenses

**Crab:** Newfoundland Shelf, Gulf of St. Lawrence, Scotian Shelf
landings of 5,947 mt; 3,703 licenses

**Whelk:** Newfoundland Shelf
landings of 899 mt

*Source: landings and license data from the Government of Canada website for the year 2017*
Local Fishery Characteristics

Atlantic mackerel:
• Newfoundland Shelf, Gulf of St. Lawrence, Scotian Shelf
• Gillnet, trap and purse seine
• Landings of 9,459; 7965 licenses

Turbot / Greenland Halibut:
• Gulf of St. Lawrence and Newfoundland Shelf
• Gillnet
• Landings of 11,336

*Source: landings and license data from the Government of Canada website for the year 2017
LOCAL FISHERY CHARACTERISTICS

Large pelagics (tunas and swordfish):
• Scotian Shelf
• Longline
• Landings of 2080 mt; 849 tuna licenses, 1216 swordfish licenses

Groundfish (cod, haddock, Pollock, white hake)
• Newfoundland Shelf, northern Gulf of St. Lawrence
• Longline and trawl
• Landings of over 30,000 mt; 8460 licenses

*Source: landings and license data from the Government of Canada website for the year 2017
**Shrimp:**

- Newfoundland Shelf, Scotian Shelf
- Trawl
- Landings of 81,466 mt; 446 licenses

*Source: landings and license data from the Government of Canada website for the year 2017*
**Fishery Bycatch**

**Lobster:**
- Interactions: 2, one live release
- Mortality Rate: unknown
- Observer coverage: (0.3-6%)

**Crab:**
- Interactions: 5.5 per year on the Scotian Shelf; no recorded interactions in the Gulf; 7 with 3 mortalities in the Newfoundland Shelf
- Mortality Rate: estimated at 1-4 deaths per year if mortality rate is 20-70%
- Observer coverage: 8-10% on Scotian Shelf, 12% in Gulf, 2-18% in Newfoundland

*Source: DFO 2012; data up to 2010; data from observer coverage, SARA logbooks, stranding networks*
Fishery Bycatch

**Whelk:**
- Interactions: 2 in Newfoundland, 10 in Quebec, and 5 entanglements
- Mortality Rate: 3 of the 5 entanglements resulted in mortality
- Observer coverage: (<1%)

**Atlantic mackerel:**
- Interactions: purse seine: 9 recorded interactions, 3 live releases on Newfoundland Shelf; trap: 1 live release in the Gulf; gillnet: 4 interactions with 2 mortalities on Newfoundland Shelf, 1 interaction from a hand line in the Gulf
- Mortality Rate: 3 live releases, 2 mortalities recorded
- Observer coverage: none

*Source: DFO 2012; data up to 2010; data from observer coverage, SARA logbooks, stranding networks*
Turbot (Greenland Halibut):
• Interactions: 2 live releases
• Mortality Rate: Unknown
• Observer coverage: 29.5% in Newfoundland, 4.8% in the Gulf of St. Lawrence

*Source: DFO 2012; data up to 2010; data from observer coverage, SARA logbooks, stranding networks
Fishery Bycatch

Groundfish (gillnet, Longline and trawl):

- Interactions: gillnet: 33 interactions with 27 live releases; longline: 2 interactions in the Gulf, 10 interactions in Newfoundland with 4 mortalities; trawl: 1 interaction in the Gulf, 1 in Quebec, 1 mortality in Newfoundland
- Mortality Rate: Unknown
- Observer coverage: less than 2% for gillnet; 2-30% for longline

*Source: DFO 2012; data up to 2010; data from observer coverage, SARA logbooks, stranding networks
Fishery Bycatch

Large pelagic longline:
- Interactions: 102 from 2001-2005; 36 from 2006-2010
- Mortality Rate: mortality estimate of 49%; 13-44 deaths per year
- Observer coverage: 5-30%

Shrimp trawl:
- Interactions: 1 live release in Newfoundland Shelf; *decrease of interactions with introduction of the Nordmore grate in 1991 on the Scotian Shelf
- Mortality Rate: Unknown
- Observer coverage: up to 5%

*Source: DFO 2012; data up to 2010; data from observer coverage, SARA logbooks, stranding networks
Data gaps (general):

- Low observer coverage
- Limited data on survival after release
- Reporting rate in Species At Risk Act logbooks unknown

Interactions and mortalities likely grossly underestimated
Species At Risk Act: “to provide for the recovery of wildlife species that are extirpated, endangered or threatened as a result of human activity.”

- prohibits harming, harassing, or killing listed species
- Leatherbacks listed in 2003

- a Recovery Strategy must be developed within 2 years of listing
  - Published 2006
- A Report on the Recovery strategy must be released 5 years later
  - Published in 2013
- An Action Plan should be developed to guide implementation of the Recovery Strategy
  - Draft completed 2018 and opened for public comment
Recovery Strategy:

6 objectives:

1. Understanding Threats
2. Understanding Leatherback turtle life history characteristics
3. Habitat Identification and Protection
4. Risk Reduction
5. Education
6. International Initiatives

3 important foraging areas identified in Canadian waters:
1. Southwestern Scotian Shelf
2. Southeastern Gulf of St. Lawrence and around Cape Breton
3. South of Newfoundland

Progress made toward addressing data gaps

**Efforts and Progress - SARA**

However:
- Critical habitat not yet defined
  - Under SARA it is illegal to destroy critical habitat

And:
- Fishers were given an exemption under the Act in cases of leatherback mortalities:
  “Assuming current levels of fishing effort within Canadian jurisdiction, the review committee concluded that there was scope for human-induced mortality without jeopardizing survival or recovery of this species.”

Also: strong language in SARA may increase reluctance to share information on interactions (Hamelin et al. (2016) *Aquat. Conserv. Mar. Freshw. Ecosyst.*)
Strategies included in the policy:

• Develop **data collection and monitoring systems** that will support timely, reliable, and aggregated reporting on retained and non-retained bycatch species.

• **Evaluate the impact** of fishing on bycatch species, whether they are retained or returned to the water.

• **Minimize the capture** of bycatch species and specimens that will not be retained, to the extent practicable.

• Where capture of bycatch species and specimens that will not be retained is unavoidable, **maximize the potential for live release and post-release survival.**

• Develop appropriate measures to manage bycatch and regularly **evaluate their effectiveness.**
WWF-Canada recommendations:

• Establish standards to improve dependability, timeliness and accessibility of data.
• Outline acceptable timelines
• Create an open access database
• Include a mechanism for independent oversight of monitoring programs
Fisheries and Oceans Canada:
The goal for the Recovery Strategy is to:

‘increase the population such that the long-term viability of the leatherback turtles frequenting Atlantic Canadian waters is achieved’.
BYCATCH REDUCTION PRIORITIES - CANADA

- **Improve Reporting**
  - Fill data gaps
  - Enforce proper reporting
- **Identify Critical Habitat**
- **Support capacity building initiatives involving marine animal first responders, ENGOs, and industry throughout Atlantic Canada**
  - Ensure fishers have appropriate knowledge and tools
  - Emphasize importance of accurate reporting
  - Adjust gear designs and develop new tools to reduce bycatch
- **Build a strong network of Marine Protected Areas**
- **Follow through on the Global Ghost Gear Initiative**
CLOSING REMARKS

- Large foraging range of leatherbacks in Canadian waters, different management regions and numerous fisheries present challenges
- Major data and reporting gaps need to be filled
- Mortality is almost surely much higher than currently recorded
- Continued engagement with fishers will be key