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Conservation and management of oceanic sharks in the IOTC area of competence

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IUCN conservation status for sharks

International Union for Conservation of Nature IUCN Shark Specialist Group (Camhi et al. 2009):

- **20 species (32%) of pelagic sharks and rays are**

Threatened

(Critically Endangered, Endangered, or Vulnerable)

- **A further 15 species (24%) are**

Near Threatened

IOTC Commission

The Commission has noted (IOTC13, paragraph 19) that: “there is no quantitative stock assessment or basic fishery indicators currently available for any of the sharks in the Indian Ocean therefore the stock status for all species is highly uncertain. In general, the life history characteristics of sharks; including that they are relatively long lived, typically take (at least) several years to mature, and have relativity few offspring, means that they are vulnerable to overfishing.”

IOTC Resolutions on sharks

Resolution 2005/05 Concerning the conservation of sharks caught in association with fisheries managed by IOTC

Resolution 2010/12 On the Conservation of Thresher Sharks (Family Alopiidae) caught in Association with Fisheries in the IOTC Area of Competence

Resolution 2005/05 – all sharks

- CPCs shall **annually report data for catches of sharks**, in accordance with IOTC data reporting procedures, including available historical data.
- Scientific Committee (in collaboration with the Working Party on Bycatch) provide preliminary **advice on the stock status of key shark species** and propose a research plan and timeline for a comprehensive assessment of these stocks.
- CPCs shall require that fishermen **fully utilise their entire catches** of sharks. Full utilisation is defined as retention of all parts excepting head, guts and skins.
- CPCs shall require their vessels to **not have onboard fins that total more than 5 % of the weight of sharks** onboard, up to the first point of landing/transshipment.
- **Ratio** of fin-to-body weight of sharks shall be **reviewed** by the scientific committee
- In fisheries that are not directed at sharks, CPCs shall encourage the release of live sharks that are caught incidentally and are not used for food and/or subsistence.
- CPCs shall, where possible, **undertake research** to identify ways to make fishing gears more selective (such as the implications of **avoiding the use of wire traces**).

Resolution 2010/12 – thresher sharks

- **CPCs prohibited from retaining, transshipping, landing, storing, selling or offering for sale any part or whole carcass of thresher sharks (family Alopiidae)**.

•. CPCs shall require vessels to **promptly release unharmed**, to the extent practicable, thresher sharks when brought along side for taking on board the vessel.

•. CPCs shall encourage fishermen to record incidental catches as well as live releases.

•. Recreational and sport fishing shall **release alive** all caught animals of thresher sharks of all the species of the family Alopiidae. In no circumstances specimen shall be retained on board, transshipped, landed, stored, sold or offered for sale.

•. CPCs shall, where possible, implement research on sharks of the species Alopias spp, in the Convention area in order to **identify potential nursery areas**. Based on this research, CPCs shall consider time and area closures and other measures.

•. CPCs, especially those directing fishing activities for sharks, shall **submit data** for sharks, as required by IOTC data reporting procedures

IOTC discussions on oceanic sharks

Discussions at IOTC WPEB, SC and Commission on:

1. **technical aspects of Resolution 05/05**
2. **scientific basis 5% shark fin to carcass ratio**
3. **need for improved data on shark catches**
4. **scientific basis for the prohibition of wire traces**

WPEB discussions on Resolution 05/05

WPEB 2008 provided comprehensive advice to SC on

- **technical reasoning for adopting Resolution 05/05**
- **lack of scientific basis for 5% fin-to-carcass ratio**
- **inability of Resolution 05/05 to achieve objectives**

WPEB04 noted that fin-to-carcass ratio should be abandoned in favour of landing sharks with fins naturally attached. This was further reinforced by WPEB in 2009, 2010, and 2011.

SC recommendations to the Commission

SC10, SC12, SC13 endorsed WPEB recommendations and brought them to the Commission

Scientific basis for banning wire traces

Use of nylon monofilament traces near baited hooks reduces catch rates for a range of shark species, due to escape by biting through traces
(Vega and Licandeo 2009, Ingram et al. 2011)

Early escape from nylon traces also reduces soak time of hooked individuals and minimises handling, which will further reduce mortality of sharks
(Ward et al. 2008, Campana et al. 2009)

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Effects of wire leaders on longline catches

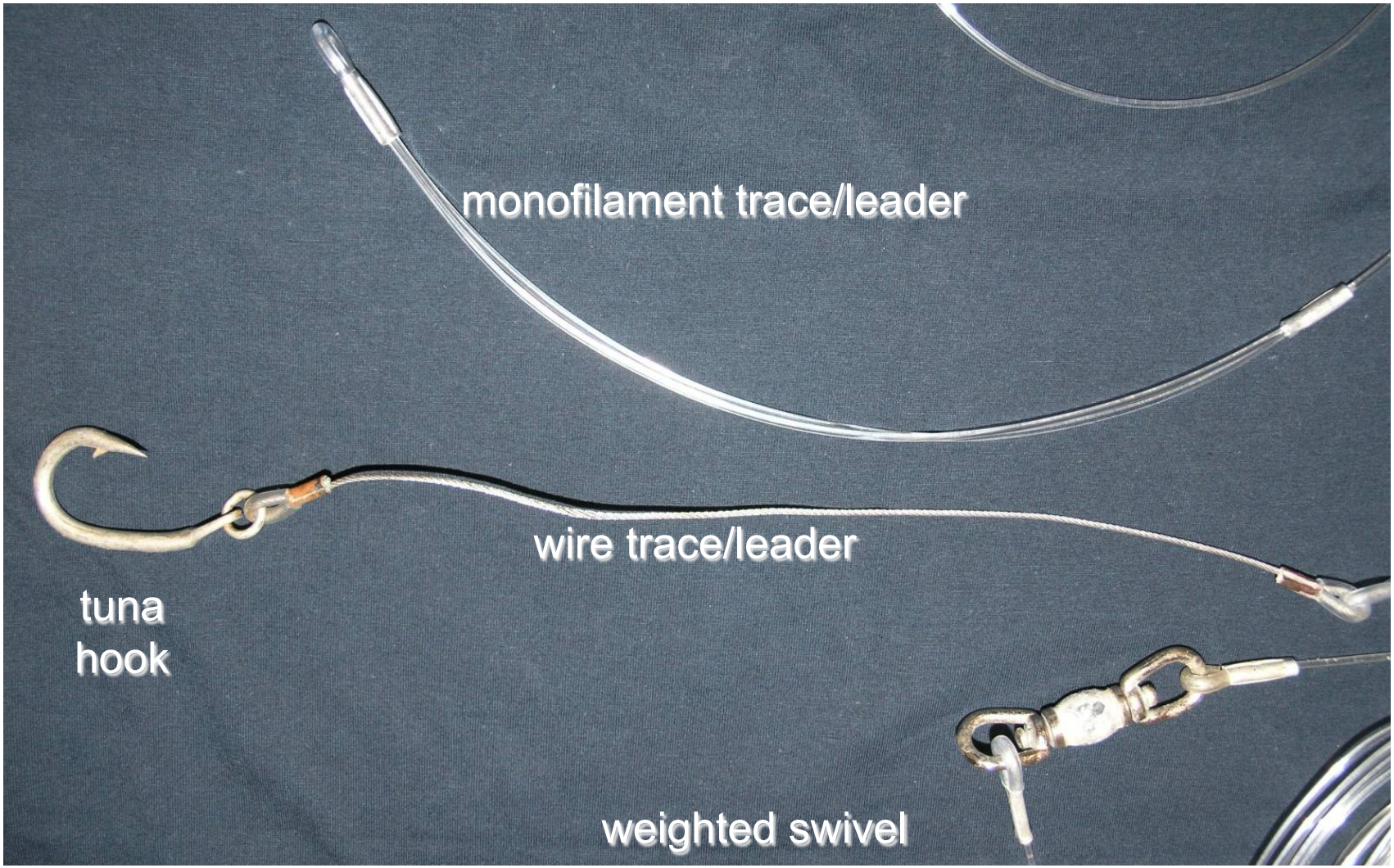
Peter Ward, Emma Lawrence,
Rebecca Darbyshire, Sheree Hindmarsh

First presented to IOTC WPEB in July 2007

Experimental design

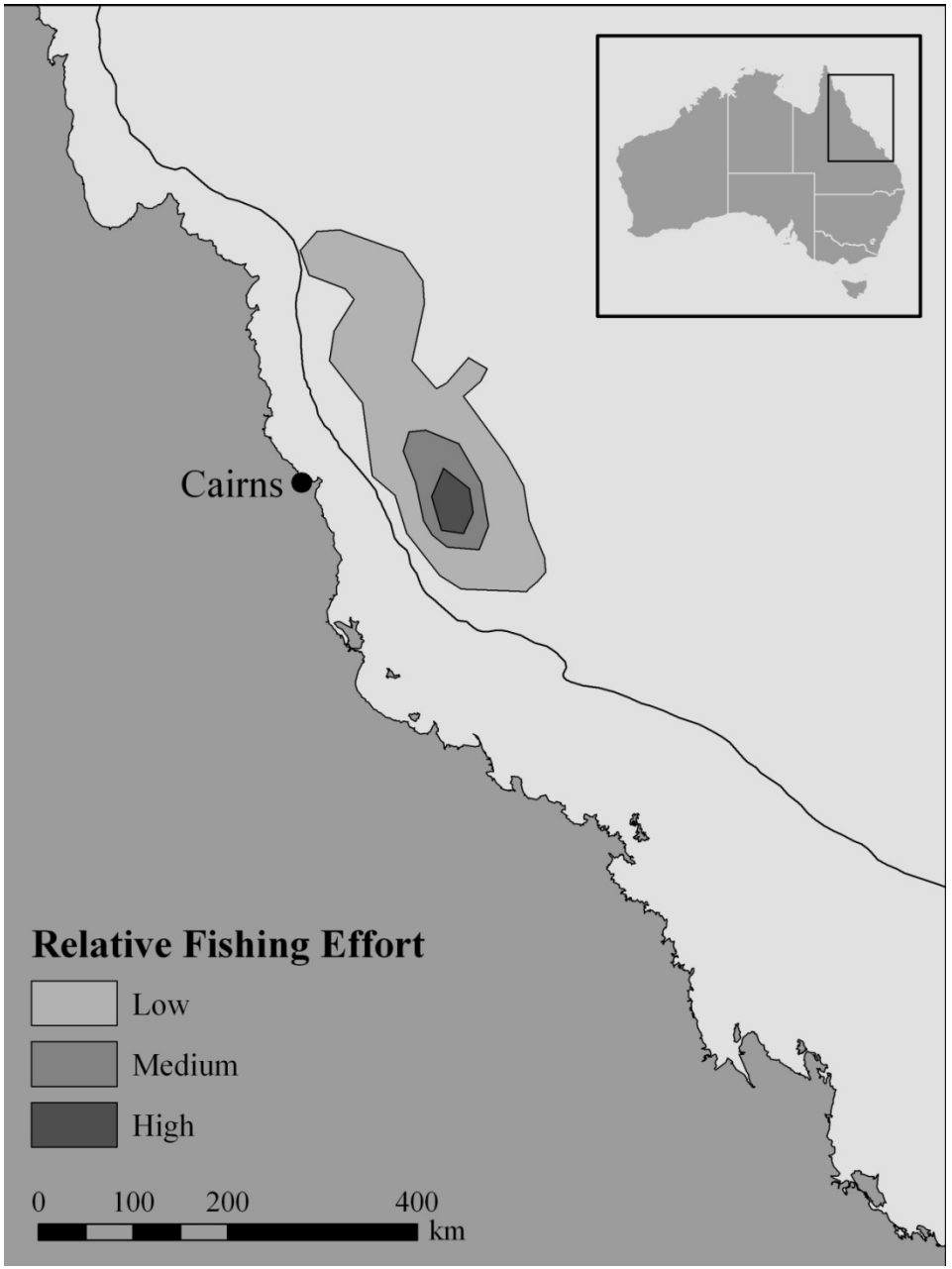
- Comparison of catches on wire vs. monofilament
- Random deployment 50% wire : 50% monofilament
- Observers monitored deployment and catches

Gear configuration



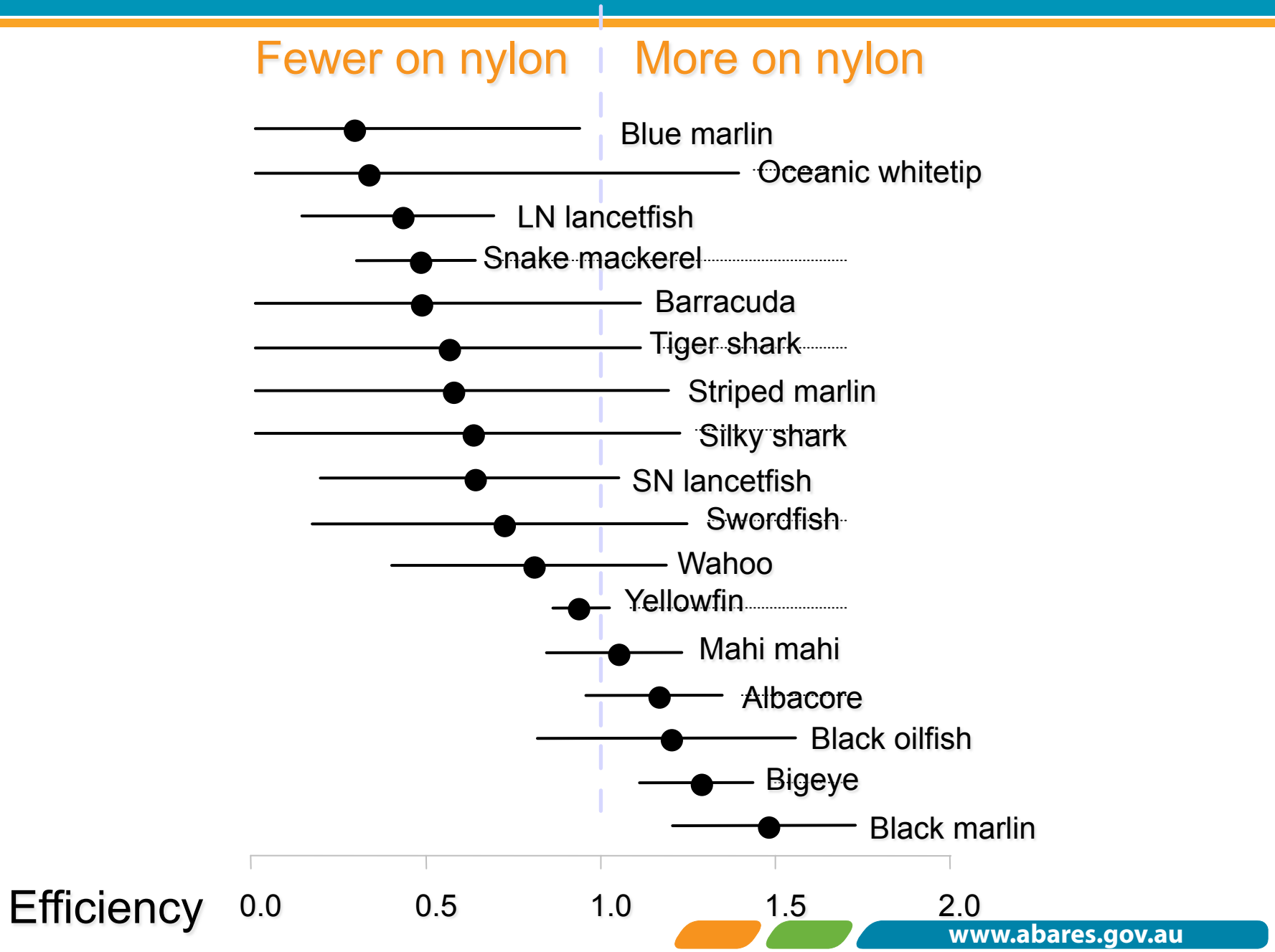
Study area

- 5 vessels
- 177 operations
- 77 000 hooks
- 2005/2006

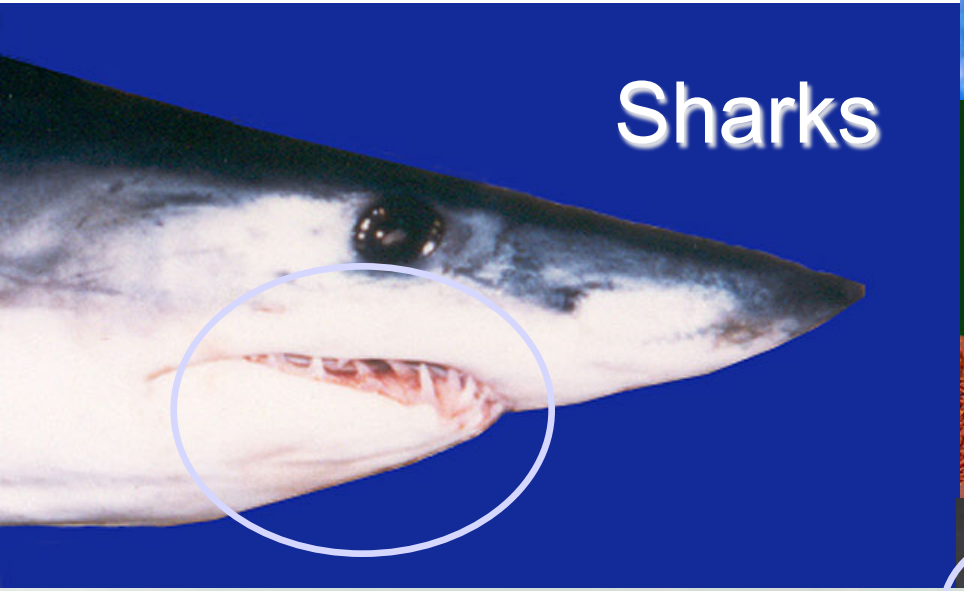


Results

Group	No. caught		Catch rate		Efficiency
	nylon	wire	nylon	wire	
Tuna	1,279	1,208	33.9	32.3	1.0
Billfish	148	140	3.9	3.7	1.0
Other fish	418	711	11.1	19.0	**0.6**
Sharks	44	103	1.2	2.8	**0.4**
Total	1,889	2,162	50.1	57.8	**0.9**


Fewer on nylon
More on nylon
Blue marlin
Oceanic whitetip
LN lancetfish
Snake mackerel
Barracuda
Tiger shark
Striped marlin
Silky shark
SN lancetfish
Swordfish
Wahoo
Yellowfin
Mahi mahi
Albacore
Black oilfish
Bigeye
Black marlin
Efficiency
0.0
0.5
1.0
1.5
2.0


Wahoo


Sharks


Barracuda


Snake mackerel


Lancetfish

Recommendations to Commission

If the Commission wishes to eliminate targeting of sharks in IOTC fisheries, to ensure the long-term conservation of sharks in the Indian Ocean, and sustainable use of shark protein for food, it should:

- **prohibit the use of wire leaders/traces**
- **require all sharks to be landed with fins attached (naturally or otherwise) to their respective carcass**
- **require catch reporting to demonstrate that catches of sharks are sustainable**

Conclusion and Thank you

Science and economics for decision-makers