

South Africa: Fin to trunk ratio
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Introduction

Historically, sharks were considered of low economic value compared to high-value teleost fisheries and therefore neglected by fishery management agencies (Barker and Schluessel 2005, Rose 1998). As a result few accurate data exist on the catches and landings of sharks, and species level information is almost completely lacking (Barker and Schluessel, 2005, Castro *et al.* 1999). Since 2000, sharks have become the target of directed commercial and recreational fisheries around the world, and are increasingly taken as bycatch of fisheries targeting high-value species such as swordfish and tuna (Barker and Schluessel, 2005). In the past sharks caught incidentally were frequently discarded to save freezer space for the more valuable target species (Weber and Fordham 1997). However, the demand for shark fin, which do not require refrigeration space and take up minimal storage, has increased in Asia (Prestowitz 1996, Shivji *et al.* 2002). As a result, an increased number of sharks are being caught (Bonfil 1994). Shark finning (practice of the removal and retention of shark fins and discarding the remainder of the carcasses at sea) is considered a wasteful practice that contravenes the full utilization of the catch and responsible fishing practices embraced by the Food and Agricultural Organisation (FAO) Code of Conduct for Responsible Fisheries.

Resolution 05/05 concerning the conservation of sharks caught in association with fisheries managed by IOTC, stipulates that Contracting Parties and Cooperating non-Contracting Parties (CPCs) shall annually report their data for shark catches, require that their fishermen use their entire catches of shark (fin-body ratio less than 5%), encourage the release of sharks incidentally caught, promote research on sharks. Furthermore, this resolution required the Working Party on Bycatch to review data on the ratio of fin-to-body weight of sharks. This paper provides the results of a study undertaken in South Africa.

Methods

Sharks were returned to port to ensure accurate measurements and weights. Crew undertook the processing to simulate processing at sea.

Results

The set of fins for export from South Africa include the dorsal fin, both pectoral fins, ventral flaps and the caudal fin. The dorsal fin is considered the most valuable and buyers will not accept any excess flesh. Therefore it is cut with a

straight cut. Pectoral fins, on the other hand, are cut in a half moon shape to max the flesh on the fin and hence increase the weight. Anal fins are prepared by first removing a piece of flesh including the anal fin and the claspers in a male. In some species (e.g. Blue sharks) processing frequently involves the removal of the belly flaps. The caudal fin is cut at the pre-caudal pit and therefore includes considerable flesh.

Fin weight to dressed weight ratio (FW:DW)

Mean fin to dressed weight ratios differed between Blue (15.91%, range 14.64%-17.84%, n=5) and Mako (7.83%, range 6.55%-8.92%, n=18) sharks ($t=19.7$, $p<0.001$).

Table 1: Summary of fin to trunk ratio for Blue and Mako sharks

	Blue				Mako			
	Dressed weight: Total fin weight	Dressed weight: Dorsal Fin	Dressed weight: Pectoral Fin	Dressed weight: Anal Fin	Dressed weight: Total fin weight	Dressed weight: Dorsal Fin	Dressed weight: Pectoral Fin	Dressed weight: Anal Fin
Mean	15.91%	1.37%	3.13%	2.33%	7.83%	0.75%	1.64%	0.59%
Std deviation	1.35%	0.25%	0.44%	0.47%	0.62%	0.09%	0.25%	0.13%
Minimum	14.64%	1.02%	2.77%	1.65%	6.55%	0.56%	1.18%	0.39%
Maximum	17.84%	1.63%	3.75%	2.70%	8.92%	0.93%	2.07%	0.90%
N	5	5	5	5	18	18	18	18
Coefficient r^2	0.97	0.93	0.89	0.81	0.96	0.97	0.86	0.88

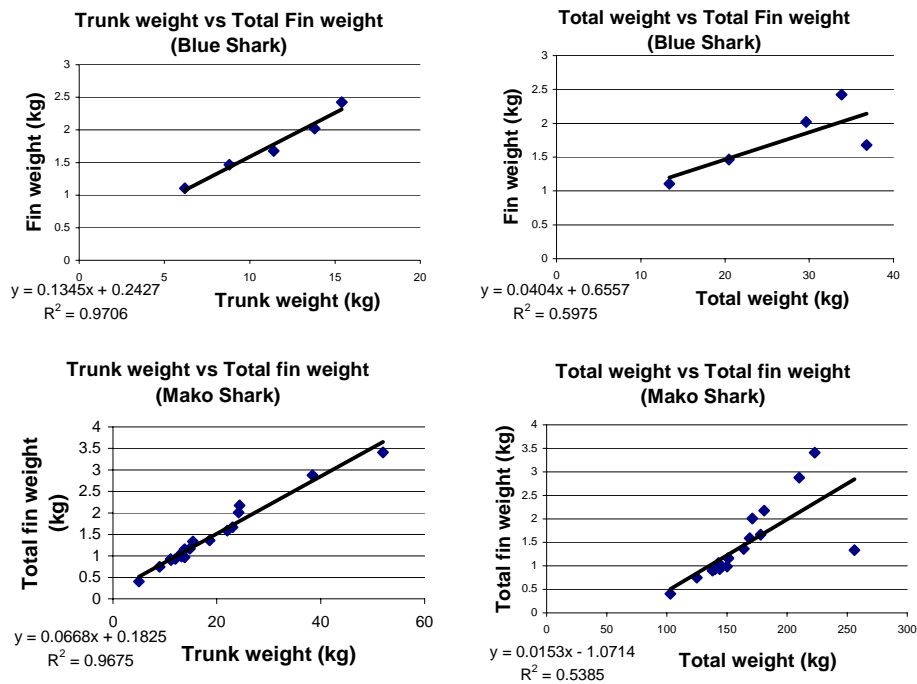


Figure 1: The relationship between fin to trunk ratio for blue and mako sharks

Discussion

We present a very small sample size and so caution is expressed. The results in this study are similar to that reported in the Spanish surface longline fishery i.e. 5.8% Mako (n=101) and 14.72% Blue (n=736) (Mejuto and Garcia-Cortes (2004). Other studies however, report substantially lower FW:DW (reviewed in Cortes and Neer (2006). The Portuguese observer program report 6.6% FW:DW in Blue sharks (n=99)). Studies undertaken in the North Atlantic and the gulf of Mexico (Baremore *et al* (unpubl) report 4.5% for blue sharks (n=12) and 2.9% for Mako sharks (n=9). Cutting techniques differ from fleet to fleet and even within a fleet. This will have a substantial impact on the fin to trunk weight ratio.

References

- Cortes E and Neer AJ. 2006. Preliminary reassessment of the validity of the 5% fin to carcass weight ratio for sharks. Col.Vol. Sci. Pap ICCAT 59 (3): 1025-1036.
- Mejuto J and Garcia-Cortes B. 2004. Preliminary relationships between the wet fin weight and the body weight of some large pelagic sharks caught by the Spanish surface. Col.Vol. Sci. Pap ICCAT 56(1): 243-253.