SPATIAL EXPANSION OF THE HAKE LONGLINE FISHERY FOR HAKE AND THE POSSIBLE IMPLICATIONS ON THE UNDERSTANDING OF THE STOCK DYNAMICS

South African Hake Longline Association

1. Background to the development of demersal longlining

1.1 The hake trawl fishery commenced in the early 1900's.

1.2 It is, and has been since then, the principle means of exploiting hake (2 species) in this fishery.

1.3 Demersal Longlining was mooted as an alternative fishing method for hake at the end of 1982 – this motivation derived from Spain and Portugal fishers, where the demersal longline was used in the North Atlantic.

1.4 A small limited exploratory fishery was started in 1983 to test the methodology – the 10 or so vessels involved included established trawl operators, and 6 or 7 vessels mostly Portuguese fishers.

1.5 The fishery in a short space of time became directed at kingklip concentrating primarily on the breeding grounds of the East Coast.

1.6 This now "kingklip fishery" was closed in 1989, after the kingklip stock declined sharply as both trawl and longline companies were targeting this resource.

1.7 The smaller non-trawl operators were compensated with a small proportion of the hake TAC – which could only be trawled.

1.8 In 1992 the issue of hake-directed longlining as a more environmentally friendly catch method again came to the fore – subsequently another longline experimental fishery was started in 1994 under tight experimental conditions, with the intention of promoting and supporting SMME participation in the hake-directed fishery.

1.9 The fishery, therefore, effectively started in the experimental period (two years).

1.10 Importantly the longline hake experiment directed effort to the west and east coasts and amongst other factors, focused on understanding gear "selectivity".

1.11 The main conclusions from this experiment were:

1.11.1 Demersal longline selected for large hake and differed significantly from trawl (with, as expected, a very different size mix of hake and species);

1.11.2 Longlines could fish on hard grounds not exploited by trawl and on softer grounds exploited by trawl;

1.11.3 By volume the longline was very small (<2000 t) and it was also spatially separated from trawl – separation was mainly as a result of the longliners fear of losing gear due to interaction with trawl operators and strong Agulhas currents of the East Coast;

1.11.4 A decision was made that demersal longlining for hake was a viable form of exploiting hake, and suited smaller SMME companies who could not enter the highly capital-intensive trawl fishery.

2. Post Longline experimental period

2.1 From 1996 onwards hake longlining became part of the hake fishery and in the mix of rights allocations.

2.2 No definitive / explicit decision was made on what proportion of the TAC would be apportioned to longline, though as a precautionary measure the amount allocated to "line" caught hake was set at 10% of TAC.

2.3 In addition to longlining a small inshore hake handline fishery was started, and this also was allocated rights under the 10% precautionary line allocation.

2.4 Significantly the longline was allocated many small portions to over 100 rights holders (insufficient to maintain year-round fishing for an individual boat owner).

2.5 Mainly for this reason, longliners fished many allocations collectively to sustain viability of operation (except for those fishers that had allocations in other sectors).

2.6 This is the current situation in the hake fishery – approximately 6.5% allocated to longline and a further 3.5% allocated to handline (no longer fished or viable for economic reasons).

3. Spatial Context

3.1 Initially the longline fishery was spatially separated from the trawl on the East Coast focusing mainly on hard grounds, as well as having strong species-directed fishing driven by market demand for fresh fish – that was principally comprised of shallow water hake (*M. capensis*). West coast-based vessels however targeted both shallow water (*M capensis*) and deep water (*M paradoxus*).

3.2 This market driven situation changed with the collapse of the wet-export shallow water *M capensis* hake markets in Europe, following the 2008 global financial crises.

3.3 The shift westwards of the East fleet of approximately 8 to 10 longliners was a result of being able to distribute and sell their wet fish catches from the transport and fish processing hub of Cape Town.

3.4 As in the trawl fleet, there was also a shift into deeper waters and away from shallow water hake on the South Coast.

3.5 The selectivity of longline for larger hake remains, though there is evidence that the size of longline hake declined over time and sizes now approximate the sizes of the larger hake proportion caught by the trawl fleet, but without the smaller size mix of hake typical of trawl (longline hook sizes preclude the catches of under 1 kg juvenile fish).

3.6 In summary, the shift of part of the longline effort from the shallow-water hake *Merluccius capensis* fishing grounds on the South Coast, to deeper west coast fishing grounds where deeper water hake *M. paradoxus* are targeted, was primarily economically driven. This shift coincided with the economic collapse of the European Markets post the 2008 global financial crisis. In the absence of a price premium in the European Markets for PQ hake, the hake longline sector, for mainly economic reasons (transport logistics, processing options, local market appetite), adjusted fishing operations to target both hake species, and also increasing availability of

longline caught hake to the South African fresh, frozen and value-added processed hake market.

3.7 This change likely does not reflect a change in selectivity – it is likely associated with a small change in fishing areas where longlines previously targeted relatively pristine unexploited areas for hake and systematically began moving into other areas ("softer" grounds). Fishing areas on the East coast is limited to a very narrow strip, whereas vessels to the West have a selection of grounds and areas depending on environmental conditions (wind, current) and fish migration and availability.

4. Implications for Hake stocks

4.1 The development of the hake longline fishery may have numerous effects, amongst others:

4.1.1 Introducing a new dynamic to be considered in the stock assessment;

4.1.2 Spatial overlap of fisheries with a likely different depth and area-related species mix and a different fishing mortality associated with loss of fish on lines or through depredation (note this point must also be seen in the context of trawl being the dominant gear taking >90% of the hake catch and with its own associated mortality, including depredation and spatial complexity);

4.1.3 Increasing demand for a more viable apportionment of the TAC for longline;

4.1.4 Overlap with trawl resulting in potentially increased user conflict on shared fishing grounds that may have impacted the efficiency of both fisheries i.e. interaction may influence catch rates when interaction occurs – this may or may not be of a level sufficient to influence the current trawl-based CPUE index.

5. User Conflict

5.1 The hake longline association (SAHLLA) is aware of the slight shift in HLL fishing effort from the South to the West Coast over the past twelve years and recognizes that this spatial shift in fishing effort may have exacerbated the potential conflict between the two sectors, competing for the same resource. The trawl operators in fact followed the same trajectory, moving fishing operations into deeper waters, predominantly on the West Coast. It was with this in mind that SAHLLA and SADSTIA entered into a Code of Conduct in 2017, designed specifically to guide longline and trawl vessels operating on the same grounds.

5.2 Since the adoption of the Code of Conduct, recorded user conflict between longliners and trawlers have been negligible, with an average of two incidents reported to SAHLLA from HLL skippers per year. Conversely, no incidents have been reported to SAHLLA from SADSTIA, highlighting incidents of longline fishing interfering with, or in any way negatively affecting trawl operations. Thus, the logical conclusion is that there is in effect very little impact by longline on trawl.

5.3 The potential for user conflict between the demersal trawl and hake longline sectors that target the same hake stocks, has existed since the establishment of the HLL sector in 1994. This is not unique to the hake fishery though, as multiple gear types targeting the same species, and or working on the same fishing grounds, is a common occurrence not only in the

South African context, but globally too.

5.4 All reported incidents involved longline vessels redeploying their lines to other fishing grounds away from where the identified trawler had confirmed it was currently fishing.

5.5 SAHLLA submits that insufficient data exists to make any determination at this stage, which suggests that the current longline catch and associated fishing effort, is negatively impacting the trawlers CPUE, and certainly not since 2017, noting that no incidents have been reported to SAHLLA from SADSTIA.

5.6 It is further worth noting, when comparing the 45 longline vessels currently approved in 2022, to the 62 vessels active in the sector in 2006, that the shift in fishing effort further from the coast resulted in a 27.5% decline, in the number of hake longline vessels. This was driven by operational considerations with larger vessels more suitable for offshore fishing thus driving consolidation and a reduction in the fleet size. This reduction in the size of the longline fleet resulted in a moderate increase in average green weight landed per vessel, in that the average allocation in 2007, totaled some 141t per vessel, whilst the current 2022 allocation is calculated at 191t per vessel (only 50t more).

5.7 Calculated against an average longline catch of 15t over an 8-day actual fishing period, the 27.5% reduction in longline vessels has nonetheless increased the average number of trips from 9.4 to 12.7, or number of actual fishing days from 75.2 to 101.6 days per vessel per year. Whilst a 26% increase in effort per vessel may on the face of it appear significant, it represents just 3 extra trips or 26 extra fishing days per vessel on average. Furthermore, this 27.5% decline in fleet size offsets this increased fishing effort per vessel, such that total effort by the fleet has not changed. Noting that the entire longline sector shares 6.5% of the directed hake TAC, the total annual effort by the current fleet of 45 HLL vessels remains substantially less than the trawl fishing effort that lands the bulk of the hake TAC, utilizing the most recently authorized 61 Trawl vessels.

6. Hake Apportionment of the TAC

6.1 Further noting the October 2021 “Socio-Economic Assessment for the Hake Longline Fishery” suggested that an exclusively hake-directed operation would require between 300-350 t of hake per annum, before any profits were realized (Japp & Droste), the above-mentioned averaged 191t remains well below this break-even point.

6.2 A 3.5% increase to the current allocation to longline will therefore, in our view, have a similar limited effect on fishing effort, and certainly not result in a sudden increase in the current number of authorized longline vessels. By using the same methodology and calculated against 10% of the 2022 hake directed TAC to longline, the average catch evenly distributed across the current 45 longline vessels totals some 292t per vessel. It is at this juncture important to recognize that this potential increased tonnage, only reaches the lower margins of the estimated minimum viable quantum, as contained in the 2021 Socio-Economic Assessment.

6.3 From an increased effort perspective, the additional 3.5% (or 4500t) should result in an average of 19 trips or 152 fishing days, when compared to the current 12.7 trips and 101.6 fishing days per vessel per year. Actual effort increase resulting from an increased allocation to longline, would therefore result in nothing more than the current vessels doing 6 more trips per year, and spending 51 more sea days on the fishing ground.

7. Spatial and Economic Context

7.1 The aforementioned scenario's, all being considered on the assumption that 100% of the HLL fishing effort is directed on the deeper water hake fishing grounds. In so far as the current spatial distribution of fishing effort across both West and South Coast, together with the actual number of vessels harvesting for clusters of longline Right Holders is concerned the following is pertinent:

7.1.1 Notwithstanding the small shift from the East to the West in effort from the shallow water *Capensis* grounds to the deeper *Paradoxus* fishing areas, 40% of HLL effort remains directed towards shallow water *Capensis* fishing. In considering approximately 90% of HDST effort is occurring in deeper water *Paradoxus* areas, 99403 t of hake is trawled in this area, compared to 5172 t of hake being longlined. It is further worth noting that a substantial amount of HLL effort has always been directed in the West from the commencement of the fishery itself, 60% of which continues to this very day.

7.1.2 Further consideration should be given towards establishing the reduction in trawl effort should the HDST TAC be reduced by 3.5%. Calculated against the 2022 TAC, 3.5% equates to a 4500t reduction in the HDST trawl effort, the associated impact of which must receive further investigation.

7.1.3 Recently published data in the 2022 General Published Reasons for the allocation of commercial Fishing Rights in the Hake Longline Fishery, sets out details of 89 Right Holders together with 45 allocated vessels. Quantum allocation ranges from 580t (i.e., The Tuna Hake Fishing Corporation) to 9t (i.e., The Jenny Fishing Enterprises).

7.1.4 Whilst a total of 45 Vessels is recorded as authorized for use in the longline fishery, the reality is that some of these vessels, whilst authorized, may never direct any fishing operations to longline at all. These are particularly true for those smaller dual sector vessels, to whom an unviable longline allocation has been made.

7.1.5 The longline sector has further adopted an economic unit approach where a number of Right Holders quanta are clustered together to promote sustainable and viable business models. Based on the 2022 HLL Rights Register, such economic unit's attribute to 73% of the sectors allocation of 8621.155t being combined into 20 vessels.

7.1.6 With the smallest cluster totaling two Right Holders, and a combined 77,160t quantum of hake, and the largest combining eight Right Holders, and 686,614t, a total of 66, or 74% of longline Right Holders, have elected to operate within economic units.

7.1.7 It is further worth noting that not all active hake longliners dedicate their fishing operations exclusively to the deeper water hake fishing grounds in the West. A notable proportion in fact continue to fish exclusively on the South Coast, whilst some longline vessels fish both on the West and South Coast.

7.2 In determining any potential negative impact to the trawl CPUE, one must as a point of departure therefore carefully consider all of the above factors. At this juncture the data proves only what we already know, being the shift in effort together with the fact that both longline and trawl operators compete for the same species on the same

fishing grounds.

7.3 SAHLLA, together with the Hake Longline sector at large, has always and will continue to ensure it commits to the principles of the Law of the Sea, namely the:

7.3.1 **the principles of freedom,**

7.3.2 **the principles of sovereignty, and**

7.3.3 **the principle of the common heritage of mankind**.

7.4 Collectively these principles aim to ensure the freedom of various users of the oceans, such as fishing and marine scientific research to name just two.