

## Calculation of the horse mackerel demersal by-catch reserve for 2024.

S.J. Johnston

Horse mackerel often occur close to the seabed. At such times, relatively large unavoidable by-catches of horse mackerel are taken during hake-directed bottom trawl operations. Consequently, there is a need for a relatively substantial horse mackerel reserve to cover these periodic by-catches in the hake trawl sector (although it is not expected that this reserve would be fully utilised every year). This incidental by-catch reserve was first introduced in 2002 at a level of 12 500 tons per annum and was subsequently maintained at this level until the 2016 fishing season. During the 2016 update of the horse mackerel assessment, projections that assumed more realistic future incidental demersal trawl by-catches of horse mackerel yielded results that were somewhat more positive in terms of resource status. The DSWG has subsequently computed the magnitude of this reserve as the product of the updated demersal trawl fishing mortality ( $F_{trawl}$ ) and the most recent BC model estimate of the biomass available to the demersal trawl fishery ( $B_{exp}^{dem}$ ).

The analyses conducted during October 2023 (see FISHERIES/2023/OCT/SWG-DEM/09) have indicated that the BC model estimate of  $B_{exp}^{dem}$  is 326 588 tons, while the updated  $F_{trawl}$  is 0.0254, yielding a value of **8 295 tons** for the demersal trawl by-catch reserve for the 2024 fishing season.

During the course of the analysis, it was established that an error in these computations had been made during the 2022 analyses, where the estimate of female spawning biomass (539 000 t) had been used in the calculation rather than the  $B_{exp}^{dem}$  estimate of 372 504 tons, leading to a recommended demersal trawl by-catch reserve of 12 397 t for the 2023 fishing season (when it should, in fact, have been 8 604 tons).

It must be noted, however that the demersal trawl by-catches of horse mackerel over the period 2020 – 2022 have all been well below the reserve amounts set for those fishing seasons (see below), and it is likely that catches during the 2023 fishing season will be below 8 604 tons.

Year	Reserve	Catch
2020	8 455	4 301
2021	8 455	5 183
2022	10 783	3 220