F0.1 was considered a reasonable proxy for F_{MSY}, although it can be higher or lower than F_{MSY} depending on the stock recruitment relationship, which in this case is poorly determined. However given the uncertainties about future recruitment, estimates of biomass base reference points were unreliable. In addition to those uncertainties, the current perception of the stock status was also closely related to the assumptions made about stock structure and migratory behaviour, which remain poorly known. Nonetheless, compared to 2014 the extra data now available do better confirm recent stock increase though the level of increase remains difficult to quantify. F_{cur} appears to be clearly below $F_{0.1}$ $F_{cur}/F_{0.1} = 0.34$. The current status of the stock, and status in 2022 under a F0.1 strategy, relative to B0.1 depends on assumptions made for longer term future recruitment. For medium[1] and low recruitment levels, the stock is already above $B_{0.1}$, whereas for the high level it is below.

If an $F_{0.1}$ strategy were to continue to be applied, over the longer term the resource would fluctuate around the true, but unknown value of $B_{0.1}$ whatever the future recruitment level.

BFTE- 4. Outlook

In 2017, the Committee presented short-term projections (2017-2022, **BFTE Figure 5**) using the average recruitment over a six year period (2006-2011) and replacing the last four years (2012-2015) recruitments, which are considered poorly estimated, with that average. According to the base model annual constant catches up to 36,000 t have higher than 60% probability of maintaining F below $F_{0.1}$ throughout 2022 **(BFTE Table 1).**

Projections are known to be impaired by various sources of uncertainties that have not yet been fully quantified. Due to the limited possibility of improving the quality of the data the Committee does not expect to provide further clarity regarding future recruitment therefore the Kobe matrix is presented only in terms of the probability that F is less than $F_{0.1}$ **(BFTE Table 1)**. If the Committee were to continue the past practice of assuming three different constant recruitment levels, under the medium and low scenarios the stock is already above $B_{0.1}$, whereas for the high level it is below.

The updated indices of abundance were consistent with the projections for 2016.

BFTE-5. Effect of current regulations

The 2011, 2012, and 2013 TACs were set at 12,900 t, 12,900 t, and 13,400 t respectively by Rec. 10-04 and Rec. 12-03, at 13,400 t in 2014 (Rec. 13-07), 16,142 t in 2015 (Rec. 14-04), 19,296 t in 2016 (Rec. 14-04) and 23, 655 t in 2017 (Rec. 14-04 and Rec. 16-09). Nevertheless, the reported catch in 2016 exceeded the TAC.

The Committee agreed that a substantial decrease in the catch occurred in the eastern Atlantic and Mediterranean Sea through implementation of the rebuilding plan and through monitoring and enforcement controls.

2017 analyses from the reported catch-at-size and catch-at-age displayed substantial changes in selectivity patterns towards larger fish over the last years for several fleets operating in the Mediterranean Sea or the East Atlantic, partly resulting from the enforcement of minimum size regulations under Rec. 06-05. This also resulted in improved yield-per-recruit levels due to higher survival of juvenile fish in comparison to the early 2000s, meaning that the stock can produce larger yield at any given level of SSB.

An important source of uncertainty originated from the reduction in TAC and size limits which may have caused changes in the fishing strategy that has strongly affected all the index calculations .It is also worth noting that the transfer of quotas from one fisheries to another may also affect stock assessment outcomes, as such transfers have implications for the repartition of the fishing effort and thus for selectivity patterns, which are known to impact the references points. Therefore, the Committee reiterates the importance to continue effort, through national programmes and GBYP, to improve the quality of currently used abundance indices and obtain robust fisheries-independent indicators. It notes however that necessary decisions regarding management of the stock have often the side effect of adding uncertainties to stock assessment, e.g., by changing fleet behaviour and fisheries selection pattern.

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[1] Averages taken over the years 1968-1980/ 1968-2012/1990-2005, for the low medium and high scenarios respectively.

The combination of size limits and the reduction of catch has certainly contributed to a rapid increase of the abundance of the stock.

BFTE-6. Management recommendations

The projections generated from the base VPA suggest that catches up to 38,000 t or 36,000 t have a greater than a 60% probability of maintaining F below $F_{0.1}$ in 2020 or 2022 respectively (**BFTE Table 1**). They also indicate that catches of 28,000 t or less have a higher than 50% probability of allowing a continue increase in the stock (**BFTE Figure 5**). It should be kept in mind, however, that the Kobe matrix cannot integrate some important sources of uncertainties that currently remain unquantified as mentioned in section BFTE-4 and in the Report of the 2017 ICCAT Atlantic bluefin tuna stock assessment session. Several sensitivity runs of the VPA and preliminary results of other assessment models suggest catches at $F_{0.1}$ that are notably lower than given by the base VPA. This points to the need to be cautious.

A case could be made to base TAC advice on the Kobe matrix results for either 2020 or 2022. However, if the TAC is set at 38,000 t through 2020, then it may have to be reduced below 36,000 t in 2021 and 2022 to maintain at least a 60% probability of not overfishing. Given the uncertainties discussed above, use of the catch figure of 36 000 t is advised due to the rebuilding time frame set to 2022. For these same reasons the Committee advises that the catches be increased using a gradual stepwise approach to 36,000 t in 2020. The continuation of the stepped increases should be reviewed annually by the Commission on the advice of the SCRS (which would be based on updates of the fishery indicators as has been done in the past three years, i.e., the SCRS could, on any of those occasions, recommend that the next increase not occur given sufficiently negative indicator signals). The Committee recommends a full assessment in 2020.

Given the abundance increase evident for the stock, the Committee advises that the Commission should consider moving from the current rebuilding plan to a management plan.

EAST ATLANTIC AND MEDITERRANEAN BLUEFIN TUNA SUMMARY	
Current reported yield (2016)	20,098 t*
$F_{0.1}$	0.107(0.103-0.120)[1]
$F_{2012-2014}/F_{0.1}$[2]	0.339 (0.254-0.438)[1]
Stock Status	Overfishing: No
Projected Yield[3] at $F_{0.1}$ in 2018	41,205 (31,190 – 57,770) t
Projected Yield[3] at $F_{0.1}$ in 2019	40,455 (31,330 – 56,600) t
Projected Yield[3] at $F_{0.1}$ in 2020	39,655 (30,420 – 55,280) t
[Rec. 12-03] TAC in 2013-2014	13,400 t – 13,400 t
[Rec. 14-04] TAC in 2015-2017	16,142 t – 19,296 t – 23,155 t
[Rec. 16-09] TAC in 2017	+500 t

1 Median and approximate 80% confidence interval from bootstrapping from the assessment.
2 $F_{2012-2014}$ refers to the geometric mean of the estimates for 2012-2014 (a proxy for recent F levels).
3 Projected yield at $F_{0.1}$ was calculated with the recent 6 years (2006-2011) recruitment level.
* As of 29 September 2017.