

Overview of recent research on health of southern bluefin tuna

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The CCSBT's objective is to ensure, through appropriate management, the conservation and optimum utilisation of southern bluefin tuna (SBT). This study provides information about health of southern bluefin tuna, in particular differences between years and cohorts as well as some information about geographical locations where the SBT were caught.

Blood flukes (*Cardicola forsteri* and *Cardicola orientalis*) are both important parasites which cause mortality in ranched SBT and may affect wild SBT performance. This study provides the first evidence of the presence of *C. orientalis* and *C. forsteri* in wild SBT caught in Tasmania. While no *Cardicola* eggs were detected via histology (heart) and qPCR ITS2 rDNA analysis (heart and gill) were negative in 2014, *C. forsteri* DNA was present in 18.8% and *C. orientalis* DNA in 12.5% of the SBT caught in Pedra Branca, Tasmania (Neumann et al. 2018).

Wild SBT from the Great Australian Bight (GAB) were investigated in 2016 – 2018. There was no significant difference between two cohorts of SBT in 2016 when presence of *C. forsteri* DNA in heart ($p=0.13$) or gills ($p=0.75$) was considered. There was also no difference in the presence of *C. orientalis* DNA in the gills of the same fish ($p=0.50$). There was no difference in the presence of adult blood flukes (*C. forsteri*) in heart flushes between those two cohorts and 2017 cohort. There was no statistically significant difference in weight or length of the SBT from those three cohorts.

Presence of gill parasites was investigated in the same individuals from the two cohorts of wild SBT from the GAB in 2016. There was no significant difference in the intensity of infection with monogenean *Hexostoma thynni* ($p=0.67$) or with copepod *Euryphorus branchialis* ($p=0.09$) or with copepod *Pseudocycnus appendiculatus* ($p=0.76$). So far there is no evidence that any of those parasites have detrimental effects on SBT health or performance.

Some of these results are not final as some samples are still being analysed.

Publications

Neumann, L, Bridle, A, Leef, M, Nowak, B (2018) Annual variability of infection with *Cardicola forsteri* and *Cardicola orientalis* in ranched and wild southern bluefin tuna (*Thunnus maccoyii*). *Aquaculture*, 487, 1-6.

Neumann, L. PhD thesis

Balli Garza J. PhD thesis