

Discussion draft

Harvest Strategy Attachment 1: Mud Crab Total Allowable Catch Setting Rational

- A stock assessment for the mud crab fishery was completed in 2019, using the modified catch-MSY method of Haddon et al. (2018) from Martell and Froese (2013). A copy of the stock assessment is available here: <http://era.daf.qld.gov.au/id/eprint/7030/>.
- Recent reported commercial harvests (2018) were around 863 t from the east coast and 157 t from the Gulf of Carpentaria. The reported commercial harvest was suspected to be biased based on previous analyses (Brown, 2010; Wang et al., 2012). For this reason, an adjustment of 30 per cent over-reporting since the investment warning in 2003 was applied to the model.
- The stock assessment suggested, for the east coast in 2017/18, the exploitable biomass (legal size male crabs) was estimated at 62 per cent (between 37 per cent and 69 per cent). For the Gulf of Carpentaria in 2017/18, the exploitable biomass was estimated at 61 per cent (between 31 per cent and 72 per cent).
- In order to maintain the stock at the Sustainable Fisheries Strategy (SFS) longer term target of 60 per cent exploitable biomass by 2027, the recommended total allowable catch (TAC) is between 1 000 t and 1 100 t for both the recreational and commercial sectors on the east coast. A total harvest across sectors of 1100 t would provide a certainty of (82%) of maintaining the 60 per cent of unfished biomass target by 2027. Given the commercial harvest proportion is around 70 per cent, this equates to a commercial total allowable catch of 770 t.
- The recommended TAC for the Gulf of Carpentaria is between 100 t and 120 t. A total harvest across sectors of 120 t would provide a certainty of (85%) of maintaining the 60 per cent of unfished biomass target by 2027. Given the commercial harvest proportion was around 90 per cent, this equated to a commercial total allowable catch of 108 t for the Gulf of Carpentaria.
- The recreational proportion of the TAC's has been calculated at 27 per cent for the east coast and 12 per cent for the Gulf of Carpentaria. These were rounded to 30 per cent for the east coast and 10 per cent for the Gulf of Carpentaria.

Species	Current estimated exploitable biomass	2018 catch	Proposed TACs	Current rec limit
Mud crab (east coast)	East coast: 62% (between 37% and 69%)	Commercial: 863 t Recreational: 331t	Commercial: 770 t Recreational: 331t (between 252t and 410t)	7
Mud crab (Gulf of Carpentaria)	Gulf of Carpentaria: 61% (between 31% and 72%)	Commercial: 157 t Recreational: 15 t	Commercial: 108 t Recreational: 15 t (between 11t and 19t)	7

- The combined commercial and recreational TAC equates to 1101 tonnes for the east coast and 123 tonnes for the Gulf of Carpentaria.